Vincenzo Riso

Álvaro Siza's Lordelo do Ouro Cooperative Building

Landscapes Heritage & Territory Collection

Coleção Paisagens Património & Território

Álvaro Siza's Lordelo do Ouro Cooperative Building: Preliminary Studies towards the Conservation of a Masterpiece in Need of Recognition

Vincenzo Riso

Prefácio

Vincenzo Riso, enquanto director do curso de Arquitectura da Universidade do Minho, programou um estudo referente ao edifício da Cooperativa de Lordelo do Ouro, projecto da minha autoria, estudo que depois dirigiu como docente do 5º ano.

É este um trabalho de juventude realizado entre 1960 e 1963, que revela o meu interesse pelo uso do betão aparente, raro no Portugal de então e particularmente presente em projectos contemporâneos da maior relevância, sobretudo de Le Corbusier (Convento de La Tourette, bloco de Marselha e um pouco mais tarde Chandigar).

O betão aparente fora já por mim utilizado no Centro Paroquial de Matosinhos, projecto de que fui afastado pelos promotores (a Comissão Fabriqueira e o então Abade de Matosinhos) por desacordo incontornável quanto a modificações pretendidas no decorrer da obra.

Não seria muito diferente o caso de Lordelo: só que o meu afastamento aconteceu depois da conclusão da obra (em 1969), por desacordo com modificações que afetariam profundamente o edifício. Essas alterações são mencionadas no rigoroso estudo da Universidade do Minho.

O trabalho desenvolvido pelos estudantes e dirigido e coordenado por Vincenzo Riso compreende a análise do projecto e a sua articulação espacial e funcional, a descrição das anomalias provocadas pelo tempo e pela ausência de manutenção e ainda as alterações introduzidas, num contexto de enfraquecimento ou mudança de critérios do movimento cooperativo; movimento extraordinariamente activo desde os anos 50, em muito pela orientação por pessoas informadas e capazes, de que recordo o Doutor Ferreira da Costa e o Arquitecto Jacobetty, responsáveis pelo convite que me foi dirigido - e que sempre apoiaram o meu trabalho.

O relatório agora publicado constitui documento fundamental como proposta para um novo e mais rigoroso sentido na recuperação dos edifícios (quase sistematicamente apenas os construídos até ao século XVIII e mais ou muito raramente nos séculos XIX e XX). Como se tivesse acabado a competência e fosse irrelevante para a evolução da Arquitectura e do uso do território tudo o que existe para além disso.

De um modo quase geral a maior dificuldade nos processos de recuperação reside, mais do que na degradação material, nas intervenções desastrosas introduzidas irresponsavelmente.

O estudo compreende como aspecto cuidadosamente considerado a apresentação de hipóteses referidas a um justificado balanço entre continuidade e renovação, reutilização incluída.

Porto, 7 de Maio de 2021
Álvaro Siza, arquitecto

Fig. 0.0
Rare color picture of the Lordelo do Ouro Cooperative Building that illustrates it in its original features and condition (Jorge Gigante 1967, collection and courtesy of the author's family)

Preface

Vincenzo Riso, as director of the Architecture course of the University of Minho, devised a study on the Lordelo do Ouro Cooperative building, a project of my own, which he afterwards carried out as a fifth year Professor.

The Cooperative building, a work I executed in my younger years, between 1960 and 1963, displays my interest in using exposed rough concrete, something rare in Portugal at the time and particularly present in contemporary projects of the utmost importance, mainly Le Corbusier's (Convent of La Tourette, Marseilles Block, and later on Chandigarh).

I had already used exposed rough concrete in the Parish Centre of Matosinhos, a project from which I was removed by the sponsors (Building Committee and the then Abbott of Matosinhos), as a result of an unavoidable disagreement concerning intended modifications in the course of the work.

Lordelo's case would not be very different, except for the fact that I was dismissed after the conclusion of the work (in 1969), due to a disagreement regarding modifications that would profoundly affect the building. Those changes are mentioned in University of Minho's thorough study.

The work developed by the students and led and coordinated by Vincenzo Riso includes the analysis of the project and its spatial and functional articulation, the description of the anomalies produced by time and lack of maintenance, and also the changes introduced, within a context of weakening, or amending of criteria, of the cooperative movement; an extraordinarily active movement since the 1950s, mainly thanks to the guidance of informed and capable people, of whom I recall Dr. Ferreira da Costa and Architect Jacobetty, who were responsible for the invitation addressed to me – and who have always supported my work.

The study now published may play a major role in buildings refurbishment given that it points out new and more rigorous paths (almost systematically directed only to those built until the 18th century, and in rare cases in the 19th and 20th centuries). As if, after that, the competence to do it had somehow vanished into thin air, becoming irrelevant to the evolution of Architecture, as well as to the use of the territory.

Generally speaking, the greatest difficulty in refurbishment processes lies in irresponsible disastrous interventions, rather than in material degradation.

The presentation of hypotheses regarding a justified balance between continuity and refit, reuse included, is a carefully considered aspect in this study.

Porto, May 7, 2021
Álvaro Siza, architect
(Translated by Helena Antunes)

Introduction

Motivation

The story is that I first arrived in Portugal as an Erasmus student, enrolled in the fifth year of the course of Architecture at the University of Porto, since I wanted to study the architecture of Álvaro Siza more than anything. No matter how banal it may seem, my aim was to look at the Master's work to possibly boost up my initial design practice. In that instance, beyond drawing as a method of designing things to be built, I almost instinctively discovered drawing as a method of closely reading others' drawings and buildings (i.e. in this particular case, Siza's work). Therefore, such broadly intended drawing exercise emerged to me as the likely link between research and practice in architecture.

Now, looking backwards, I can see how much that experience would determine my professional imprinting, both as regards research and teaching activities; as I see it, whenever confronted with the flesh and blood reality of a piece of architecture to be cognized, I seem to have adopted the same investigative technique over and over. Subsequently, I undertook the so-called Modern tradition as preferential field of application of analytical drawing. Then, the time came for that same Modern heritage to be preserved from ageing problems. So, for me, drawing became not only a way of interpreting Modern built-forms, but also of mapping the alterations of their structures and materials. More recently, I finally got back to study the works of Álvaro Siza, mainly the earliest ones, which now require interventions for conservation purposes. This latter exercise means coming to full circle somehow. It is the best way I can think of to apply the expertise I have earned in all these years.

Accordingly, that is why I think it is equally understandable how honored I am to have this book prefaced by Álvaro Siza himself. So, this digression of mine could, I guess, be justified by the need to express my gratitude to Álvaro Siza for his precious validation.

The Building's version

The Lordelo do Ouro Cooperative Building (often referred to in this book as the Building) has had its own difficult history, including of neglect, shortly after its completion. In fact, because fashion "oblige" (we are talking about a time when aluminum was a new thing and considered as the unquestionable material of the future), the Building suffered the ultimate outrage[1] when it had its vast hardwood openings framework replaced with a standardized aluminum siding and glazing system. From that moment on the Building fell into oblivion, including on the part of the academia

1. The extent of such (today revealed) outrage and the way fascination for fashion and its inherent mutability may affect even the technical field of building construction, are perfectly portrayed in the grotesque scene in W. Allen's movie "Deconstructing Harry (1997) where the main character (Harry) is on an elevator on his way to hell and the sinful crimes committed by the 'damned' guests are announced at each floor.' "-Floor five: subway muggers, aggressive panhandlers and book critics -Floor six: right wing extremists, serial killers, lawyers who appear on television -Floor seven: the media... sorry, that floor is all filled up -Floor eight: escaped war criminals, TV evangelists and the NRA-Lowest level: everybody off!" Then he takes a few steps at the bottom of hell and asks the first one he meets: "what did you do?" And the answer he receives is: "I invented aluminium siding".

2. That historic donation, consisting of the material documentation of Siza's architectural projects in the North of Portugal, was made in 2015 in tandem with further donations from that same Archive to the Canadian Centre for Architecture in Montreal and the Calouste Gulbenkian Foundation in Lisbon. In 2016, architect and critic André Tavares was invited to offer a first glimpse of that precious

archives material, while it was being catalogued, with an exhibition that was presented at the Serralves Museum named "Raw Material: A View of Álvaro Siza's Archive". Subsequently, the work on the exhibition which aimed to give visibility to some of Siza's early projects (including the Lordelo do Ouro Cooperative Building) was published in 2017.

3. At the School of Architecture Art and Design of the University of Minho (EAAD) we offer an integrated master degree course in architecture, which is broadly oriented and not specialized into different degree sectors; in the 4th and 5th years students can decide on their own path within a variety of different Design Studios widely ranging in scale and type of intervention. Among those in the first semester of the 5th year, it is generally proposed a theme for the conservation design exercise, consisting in the refurbishment of an ancient, not listed, building. In 2015 I advocated here a program based on the refurbishment of a valuable modern building through the design of its functional adaptation and constructive repair.
4. See Note 2.

5. The group of students at this time included: Adrià Salom Gómez; Agostinho Miguel de Freitas e Sousa, Ana Beatriz Meneses de Oliveira, Andreia Filipa Oliveira Soares, Cassilda Daniela Almeida Baptista, Clara

(architecture scholars), probably due to the wretched state it was in after the alterations it suffered.

Then, apart from scarce appearances within the complete registers of Siza's work, which along the years have been published in innumerous books dedicated to the Portuguese Master, the (still existing) Building remained alive only in the memory of those who knew it in its original form. As far as I know, the first consistent attempt to draw back public attention upon such unlucky case was made by André Tavares, who documented and reconstructed the disagreement between the architect and the management of the Lordelo do Ouro Cooperative dating back to July 1969, which ended in Siza's dismissal and gave way to those sorrowful alterations. This recovery of memory occurred only a few years ago when forty projects from the Archive of Álvaro Siza were donated to the Serralves Foundation[2] in Porto.

I knew about this Building by literature, but I owe the idea to visit it to my fellow teacher Elisiário Miranda, who had also been a former close collaborator to Álvaro Siza; that visit occurred in the summer of 2015, while I was searching for a case study to work with 5th year students as an exercise concerning architectural design for the conservation of modern built heritage.[3]

Since that first visit to the Cooperative we realized its current difficult situation when it comes to its organization and purposes. It is basically a consequence of the progressive ageing of its members, which was not supported by the entry of new members, and correspondent non-renewal of management. So, its many social functions, originally spanning from social to economic support, as well as cultural and leisure activities, have been progressively reduced to limited resale of those customary products which people can now buy even cheaper at big chain stores. And as regards to the Building this led to the closing of all of the spaces designed for social and cultural activities and their consequent abandon and inherent deterioration.

Therefore, we recognized in the Lordelo do Ouro Cooperative Building not only a fine example of the science of conservation of Modern Architecture, but also the perfect occasion to demonstrate the potential social value of such heritage. Meaning at the same time that intervening in the Lordelo do Ouro Cooperative Building would inevitably raise a wider range of questions and not merely technical ones. That is, a conventional architectural intervention would not be sufficient to repair or improve the existing spaces, and any significant improvement would necessarily have to take into account the revitalization of the institution.

da Silva Vieira, Eduarda Maria Barbosa de Araújo Rocha, Elsa Cristiana Alves Gonçalves, Fábio Teixeira Gonçalves, Franc Linxa, Hugo de Mendonça Ribeiro da Costa e Silva, João Paulo Oliveira de Almeida Brandão, Leandro David Arieira Alves, Paulo Rafael Dias Oliveira, Tatiana Vilaça Campos, Vânia Isabel Ferreira da Silva.

6. The group of students then included: Álvaro Nuno Piairo de Oliveira da Silva Mendes, Ana Rita Teixeira Lopes, Carla Filipa Dias Lopes, Diogo Manuel Novais Pereira, Diogo Oliveira Araújo, Inês Alexandra Cardoso Tavares, Inês Eira de Castro, Inês Sofia Machado Torres, Júlio Alexandre Bacelar Oliveira Ferreira, Lucía Laín Mateu, Nuno Alberto Oliveira Gonçalves, Patrícia Pimenta Carvalho Ferreira, Ricardo António Fernandes Ribeiro, Rodrigo Santos Camargo, Silvy Alves Dias, Simão Pedro de Carvalho Lima, Vânia Patrícia de Sousa Cardoso.

Our Design Studio exercises

In 2015 and 2016 the fundamental resource of the original archive documentation was not accessible,[4] thus we had to wait until fall semester 2017 to launch the Lordelo do Ouro Cooperative Building as case study for our school "building conservation" 5th year Design Studio. The same case study exercise was repeated in the following academic year 2018–19.

The Studio's program is usually articulated into three parts. In a first phase students are given the full archive documentation of the original design dossier and asked to study and survey the chosen building so as to produce a detailed observation and comprehension of the built-form, while drawings are also produced to register alterations and deterioration problems. The whole group of about 20 students is divided according to different tasks in order to produce a global result. Then, in a second phase students are asked to imagine and set out a strategy, which could lead to a functional extension of life for the building; in this phase they work in smaller groups so they can come up with alternative strategies. In general, this could be seen as an attempt at a new life for the building while trying to recover the interplay between the given structure and its social context. In a third phase the work becomes individual and it consists of the translation into the building's spatial organization of the previously outlined functional reorganization strategy; accordingly, minimum, yet sufficient, alterations can be defined at this point. At this stage each student has also to deal with the repair or improvement of a construction problem or detail, which is to be chosen in the logical continuity of the whole work. As an overall remark, we should make clear that our work has always been (in any given case along the years) a kind of exploratory research aimed to recognize problems, to outline operational measures and organize a design agenda. That is to say, even though our exercise is based on reality, none of the global or detailed proposed solutions are intended to be absolute, rather a partial piece of a set of interlocked hypotheses.

Due to the relevance of the Lordelo do Ouro Cooperative Building, the work progress led us first (i.e. in the year 2017–18[5]) to concentrate efforts on imagining a new operational strategy for the Cooperative, and the following year (2018–19[6]), also by taking advantage of what was previously achieved, to focus on certain architectural design questions in more detail. Obviously, even the initial work of surveying and interpreting the Building benefited a lot from previous analysis.

The book structure

Resembling some kind of notebook on the Studios 'work' and in correspondence to the described path of development, this book contains three main chapters in which single and particular students' achievements have been assembled in a sequence. The final arrangement of the book contents resulted also from wanting to give a full description of the Building's features and conditions, as well as to cover the main design and technical questions inherent to its refurbishment as a whole.

So, in the first chapter "Study of the original project", according to our established analytical practice, we tried to illustrate how the single factors of *topos*, *typos* and tectonic[7] were combined to result in the physical reality of our Building. Specific attention has been given to the reconstruction of spatial articulation and material junctures were broadly considered at every scale, from the entire construction site up to its minimum detail and every functional part of the Building. This process was synthesized through tri-dimensional drawings, and resulted in a sort of 'technical graphic-novel' illustrating the micro-history of the building from its ideation up to its present condition. Notwithstanding, it should be noted that in spite of our overall work of revision, drawings may not be free from errors and omissions. On the other hand, it is evident that same drawings have graphic discontinuities among them. In fact, we should bear in mind that the published outcomes result from the aggregation of many different hands/minds, even though from the very beginning a good effort was made towards the adoption of a common graphic code. Taking into account the limits of the means and the duration of our Studio, it could not have been any different; also, it goes without saying that a real research project about the Building would require appropriate resource funding.

The second chapter "Hypothesis for a new social and economic strategy for the Cooperative" addresses the crucial question of the revitalization of the Cooperative, as an institution. While being aware that it would not be mainly an architectural task, we think we can still contribute in some way. That is to say that the 'invention' of a different functional strategy for the Lordelo do Ouro Cooperative would at this stage be as important as its implementation. In short, a certain degree of imagination should also be a requirement when it comes to shaping a strategy as regards the current architectural value of the Building. Thus, on the one hand, the detailed knowledge of the social and economic context of the city of Porto would be a vital necessity for rooting a functional recovery of the Cooperative; on the other hand, it is the Building itself that, depending on its intrinsic spatial and material characteristics, should define the limits of the intervention. Even generally speaking, nowadays the elaboration of a new

7. Key theoretical foundation of such procedure is due to the text "Reflections on the Scope of the Tectonic", which is the first chapter of Kenneth Frampton's famous book *Studies in tectonic culture: the poetics of construction in nineteenth and twentieth century architecture*.

functional strategy has become an essential part of invention work, in which architects are asked to participate when dealing with this kind of building conservation design. And furthermore, we should always keep in mind that the more the idea for a functional adaptation is precise, the more the design effects are inspired and likely to succeed.

Just as we recognized the need to clarify how far we would be willing to go for the Cooperative to become a lively institution once again, we thought it necessary to formulate definite design proposals (however conjectural those might be) to keep the whole work plan from slipping into a cloud of indeterminate heterogeneity. Therefore, as a result of the two previous ones, in the third chapter "Design samples of the Building's conservation and refurbishment", we intended to identify, in architectural terms, what could be the smallest alterations to introduce in order to apply the previously outlined functional reorganization strategy into the building's spatial organization. That was the idea behind the research – by design – of a number of possible alternative solutions. Similarly and in parallel, we probed how to upgrade -in a process of approximation to current standards- its primary functioning performance. Then, while keeping in mind several cases where slavish enforcement of regulations and the use of conventional compliance measures have led to a distortion of Modern buildings, we have also outlined compliance measures or the elaboration of so-called 'equivalent solutions' as regards to accessibility, hygiene, and safety regulations. Finally, students were asked to deal with the repair or improvement of a construction question or detail, which was to be chosen in the logical continuity of the whole work. Besides providing some sort of individual development, it was also coordinated within the group so as to reach a good coverage of all the technical questions inherent to the building's refurbishment.

The main body of the book is complemented by a preliminary description of the Building and its vicissitudes right there in the "Prologue". Here one can also find the description of the part of the collection that, within the Álvaro Siza Archive, concerns the Lordelo do Ouro Cooperative Building.

Similarly, after those three main chapters, based on various research work we developed in recent years about Modern heritage, we decided to add a series of documents about those specific practices related to drawing as an interpretative means of that particular built-form and as a process of mapping its materials' alterations. By looking back at what has been produced and by questioning it, we have taken the occasion to make explicit the implicit design intention of such process.

Finally, we have included an afterword by Carles Muro,[8] who was a guest critic at the presentation of the results of our Studio work exercises in January 2019, and for which we are very grateful.

8. Adjunct Curator of Architecture Programmes at the Serralves Foundation Museum of Contemporary Art in Porto, also responsible for the management of the Álvaro Siza Archive (2017–2019).

From his privileged knowledge of the whole of Siza's mastery, he offers here an external appreciation of our work and, above all, a critical appreciation of the Lordelo do Ouro Cooperative Building, which could hopefully initiate a public debate about a real recovery plan.

What is to be done?

Hopefully, in addition to scientific interest, a further desirable goal of this book will be to bring attention to Lordelo do Ouro Cooperative Building's current situation. In fact, given an almost absolute lack of awareness, at any cultural and/or institutional level, of its relevance (and as the Cooperative is declining), there is a possibility that the Building could be alienated and even demolished to be replaced with the intention to monetize the valuable position of its ground plot overlooking the river Douro banks.

So, after the work we developed within our Studio courses – just a training exercise regarding a possible path towards the recovery of the Lordelo do Ouro Cooperative and the conservation of its Building – with the institutional backing of the University of Minho we applied for a 'Getty-Foundation/Keep-it-Modern Initiative' 2019 grant meant to support the production of an effective study that could establish the basis of a conservation plan.[9] Unfortunately for us, our case study project was not as competitive as the others, hence it was not recommended for support by the competent review committee.[10]

Then, the idea of the present book[11] also arose as the next possible attempt, in the long run, to safeguard the Building. Even though the Building looks poor, the robustness of its spatial and structural organization has preserved most of its intrinsic quality, which is still there waiting to be rediscovered and once again fully appreciated.

Subsequently, in preparation for any material action of conservation, the inclusion of the Lordelo do Ouro Cooperative Building in the List of National Portuguese Monuments,[12] should be pursued, given that it is a normative disposition which could protect the Building – that is to say by determining the aspects of the means of protection (planning for protection) and the gradual nature of protective measures (protection as a process).

To achieve this initial goal, help and advice from the community of lovers of Modern architecture and that of Álvaro Siza would be more than welcomed.

Vincenzo Riso
August 2021

9. On the occasion Álvaro Siza agreed to act as external supervisor of the research team, which was also composed by José Aguiar (Architectural Restoration Specialist – Faculty of Architecture of the University of Lisbon), Ana Francisca Azevedo (Territorial and Social studies Specialist - Department of Geography, Institute of Social Sciences, University of Minho), Rogério Gomes (History of Modern Construction Specialist – Lab2PT Unversity of Minho), Eduardo Júlio (Structural and Materials Engineering Specialist – Civil Engineering Department of Instituto Superior Técnico of the University of Lisbon), Daniel Duarte Pereira (Communities socio-spatial practices Specialist – Space Transcribers - interdisciplinary network of architects, urbanists and artists), Jose Luis Gil Pita (Architectural Conservation Management Specialist – Gil Pita & Nieto Peñamaria Arquitectos / Santiago de Compostela), Peter Testa (Álvaro Siza's archive and work Specialist – The Southern California Institute of Architecture), Jónatas Valença (Built structures' Survey and monitoring Specialist – Civil Engineering Department of Instituto Superior Técnico of the University of Lisbon).

10. Keeping It Modern 2019 list of grants awarded is available at: https://www.getty.edu/foundation/initiatives/current/keeping_it_modern/grants_awarded_2019.html

11. By the way, as far as the title of this book is concerned, we decided to keep the name we chose for our 'Keep It Modern' application proposal, as well as American English orthography.

12. In Portugal, the Institute for Management of the Architectural and Archaeological Heritage (*Instituto de Gestão do Património Arquitectónico e Arqueológico* – IGESPAR) is in charge of immovable properties listed as being of national, public or municipal interest, based on historic, cultural, aesthetic, technical and scientific criteria, and also integrity, authenticity and exemplarity. The list is continuously growing and encompasses diverse building typologies, from monastic walls to industrial architecture. Even though the law does not specify a time limit for the architectural register, there are only a few records concerning Modern architecture in IGESPAR's Inventory.

Prologue

The Case of the Lordelo do Ouro Cooperative Building

In this Prologue section, all the following black and white pictures result from original archive documents granted by Álvaro Siza © Archive Serralves Foundation – unless otherwise indicated – and illustrate the Building in its original (1960–63) features and condition. All colored pictures were taken by the author and illustrate the Building in its present (2017–19) features and condition.

The Lordelo do Ouro Humanitarian Cooperative Association for All Types of Consumption, Production and Construction was established in Porto, in 1897, within the national federative organization Unicoop, which oversees the cooperative movement in Portugal. After the construction, in 1959, of new building headquarters, to replace the old premises, and based on his early works in hometown Matosinhos, nearby Porto, Álvaro Siza was assigned the design task by the Lisbon Unicoop national management.

The site, in between the long urban axis Avenida da Boavista and the Douro river banks, was at the time a peripheral area with few speculative buildings. Here Siza planned two massive concrete volumes with outside openings gathered just at the ground level of the southward elevations.

The plan combined a low fan-shaped warehouse and a cubic office block. The adoption of a reinforced concrete structure permitted to experiment an open spatial planning, which included areas for sales, warehousing, workplaces and social events. Administrative and community leisure spaces were organized around a three-story sky-lit atrium in the taller cubic block, while the food storage and distribution areas benefited from a small open central courtyard.

The rough textured surfaces of exposed concrete denote the experimentation of modern material construction, however, in the whole the building can be appreciated as a sculptural accumulation of pure volumes. Further expressive characterization is given by the use of woodwork along the almost continuous glazed framework of the low southward openings. As one can see in the photographs taken at the time of the completion of the building, the glazed surface was put in place by shifting forward the façade's plan from the loadbearing structure's line. In the making of that glazed screen, the articulated construction of the casing resulted in some kind of diaphragm/baffle machine, also aimed to control passive ventilation.

The interior finishing established a similar complementarity between white plaster surfaces (the inner side of concrete walls) and the wood framings. Furthermore, those window framings visually merged with the wooden furniture, which was especially designed for each space and function, i.e. tables, chairs, benches, counters, shelves etc. were an integral part of the original space organization.

Even a simple look into the archive documentation of the project reveals that a lot of drawings were needed to define that hardwood (African Doussie or 'Afizélia' in Portuguese) apparatus in its general outlines, as well as in every single piece of joinery work.

So, even if the (wood) material was somewhat traditional, there was an effort to renew its use in terms of original method of construction, which shall be recognized as Álvaro Siza's tectonic imagery in his following works.

A kind of technological adaptation can be observed also in the very use of reinforced concrete, which is different from the customary 'skeleton' construction model established almost worldwide. As a matter of fact, it was precisely at that same time that Siza initiated his own use of reinforced concrete according to the structural system of wall construction, that is to say an organic combination of lines of support instead of a regular grid of support points.[13]

In the poetics of Álvaro Siza, the enriching experience of making architecture on site was always very important and its material execution was correspondently achieved through the adoption of such concrete wall construction, which also allowed him to develop a process of subtraction and a search for the essential.

But it should also be noted that, in contrast to the Lordelo Cooperative building, Siza rarely used exterior exposed concrete finishes in the vast majority of his later famous works, having preferred plastering or stone veneering the concrete walls of his buildings.

Similarly to the brutalist option Le Corbusier initiated in the 1950's with the Duval Factory (St. Die), Siza experiments the textural richness that can be achieved through a concrete surface, if the rough surface of the wood panels, where it is poured, is taken up; and this appears even more pertinent in such a case, i.e. when a loadbearing wall concept is extensively adopted.

In short, it can be said that, within Siza's work, this building establishes at the same time a prime example – that is the use of reinforced concrete wall construction to organize an empirical layout of the plans – and an almost unique case – that is the adoption of exposed concrete surfaces.

Anyway, despite such relevance, the building was seldom considered throughout almost four decades of critical reviews about Siza's worldwide renowned work. That was probably due to the deteriorated aspect it was reduced to.

In fact, some years after the building's opening, a conflict arouse between Siza and the Cooperative's new management. The building was leaking and the wood windows' apparatus was not performing as expected. Following recommendations by technicians, the Cooperative's board approved its replacement with anodized aluminum window framings. Siza contested those findings, pointed out the causes of the problems, which included construction flaws, lack of maintenance and misuse, and offered solutions.

This dispute over the use of aluminum or timber window frames can help us focus on the peculiarity of Portugal's belated social and economic development in the twentieth century, as well as the inventiveness of Siza's design attitude. In fact, contrary to the rest of Europe, Portuguese wood craftsmanship in the 1960's was still an alternative to standardized metal production. By adapting standard concrete construction to a 'tailored' wall concrete system,

13. Precise analysis can be find in V. Riso, "*Building methods in the architecture of Alvaro Siza*", in *ARQ (Architectural Research Quarterly of Cambridge University) linking practice to research*, vol. 4, n. 3, 2000, pp. 265–280.

and by adopting the traditional carpentry, Siza seemed to go along with and give sense to the peculiar situation of building production in Portugal – customized quality with low costs.

Indeed, the novelty of Siza's designs precluded the possibility of relying on simple common artisanal knowledge, and instead demanded a profusion of specific new solutions (and the above mentioned correspondent huge amount of detailed scale drawings) for the entire building. So, modern techniques and materials were not taken as a given, instead creatively 'conjugated' with the specificity of the given context of application.

In any case, and getting back to our story, the Cooperative accused the architect of being inflexible and fired him, and went on operating also other heavy alterations, such as that concerning the three-story high space within the tower volume, which was sealed off at first floor level, and the closing of the small open courtyard in the outspread area of food distribution.

Subsequently, even the hardwood furniture was literally thrown away and replaced with a metal one according to a principle of supposed better hygiene; so today only spare pieces remain of the original one.

In parallel, it should also be said that some diffused deterioration phenomena (and related inappropriate alteration/repair interventions) occurred due to water infiltrations and leaks in roofing and drainage structures. Growing vegetation aggravated the initial material disintegration. Those problems have, in turn, caused other minor deteriorations such as biological patinas, particularly at ground level and intradoses. Besides this, the brackish atmosphere of the Atlantic caused the punctual detachment of the concrete surface in every elevation.

Nowadays, because of socio-economic changes, which were not matched, the Cooperative lies almost abandoned. With the loss of the practical function, even its remarkable value as a social meeting point suffered hugely.

Therefore, and due to an almost absolute absence of awareness, at any cultural and/or institutional level, of the above described relevance, the building could even be alienated and demolished to be replaced with the intention to monetize its valuable position overlooking the river Douro banks.

No doubt that the building looks poor now, nevertheless the robustness of its spatial and structural organization has preserved most of its intrinsic quality, which is still there waiting to be rediscovered and once again fully appreciated.

Figs. 0.1 a/b/c
The surrounding context in the western part of the city of Porto in 1960-63.

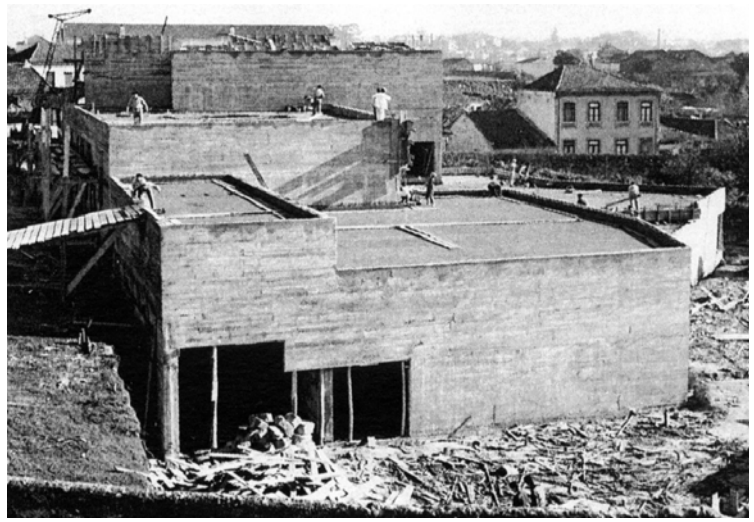
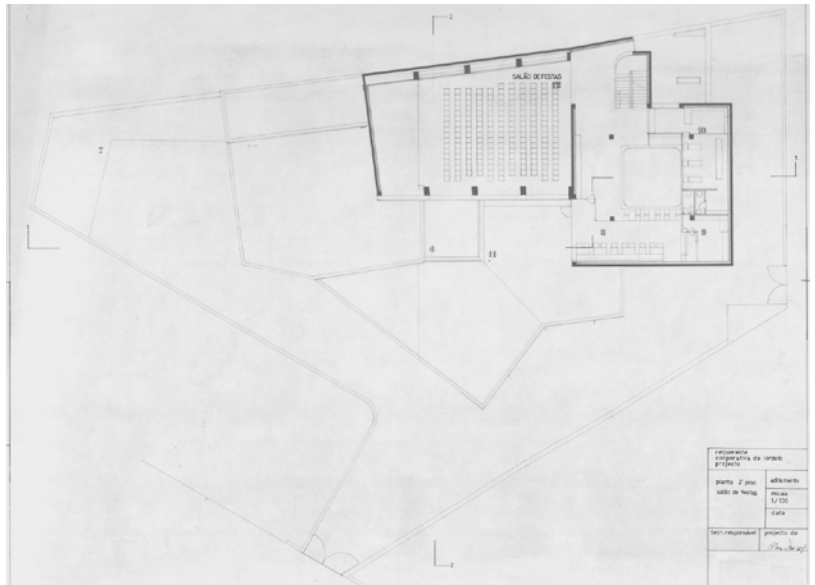
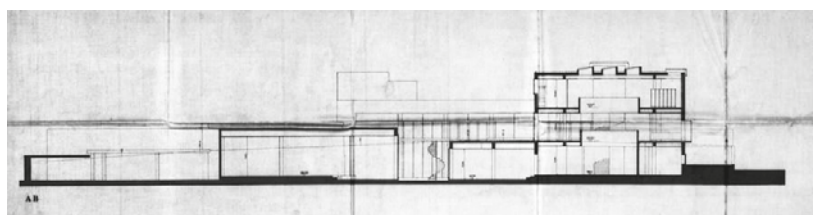


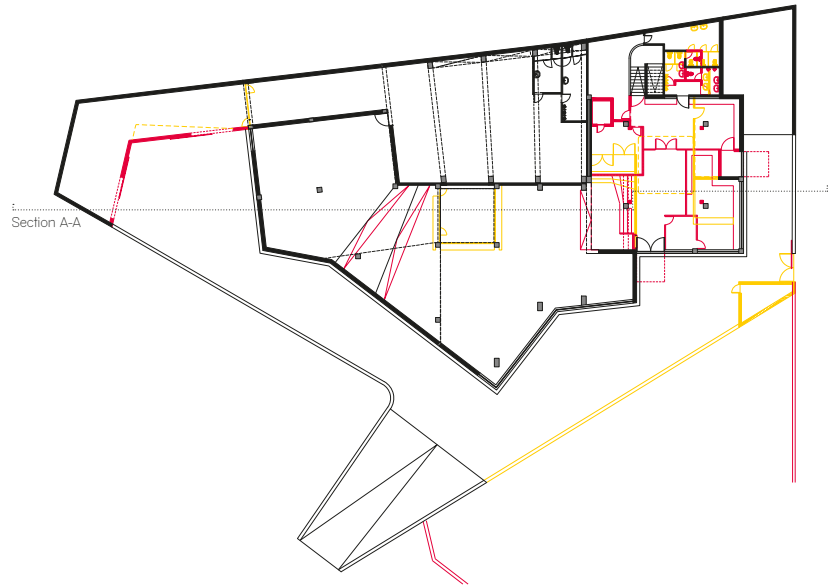
Fig. 0.1 d
The surrounding context in the western part of the city of Porto in 2018 (aerial view DGTerritório).

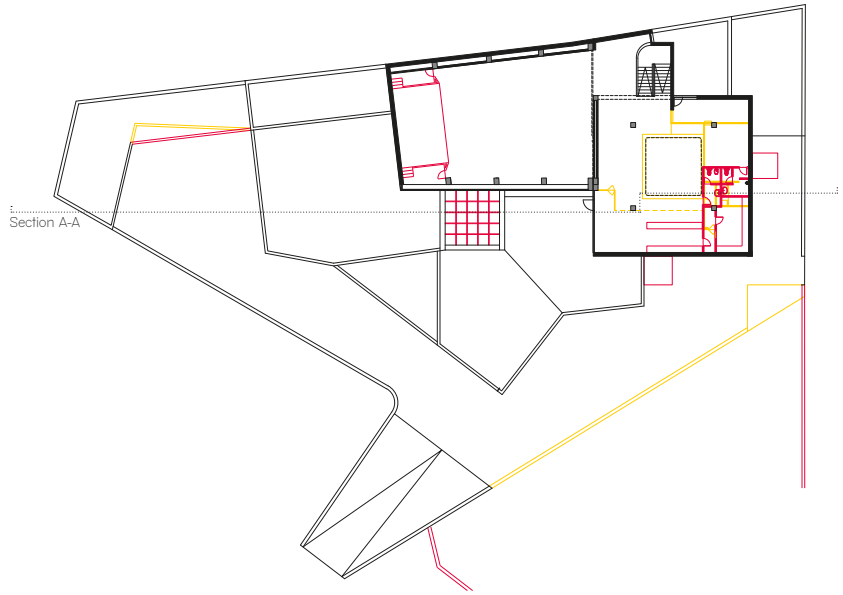
Figs. 0.2 a/b/c
Original ground
and first floor plans.
(with longitudinal section)
© General Archive
of the city of Porto.

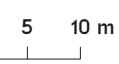




Figs. 0.3 a/b/c
Our survey of ground
and first floor plans
ensuing alterations.
(with longitudinal section).

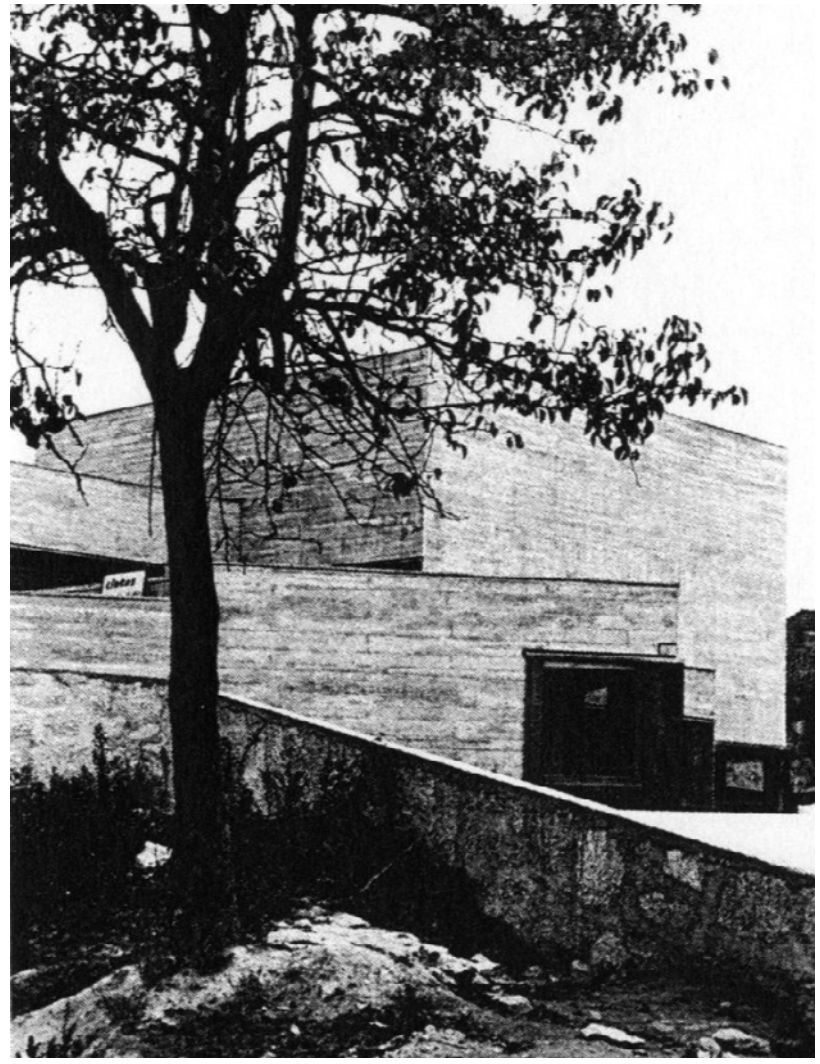


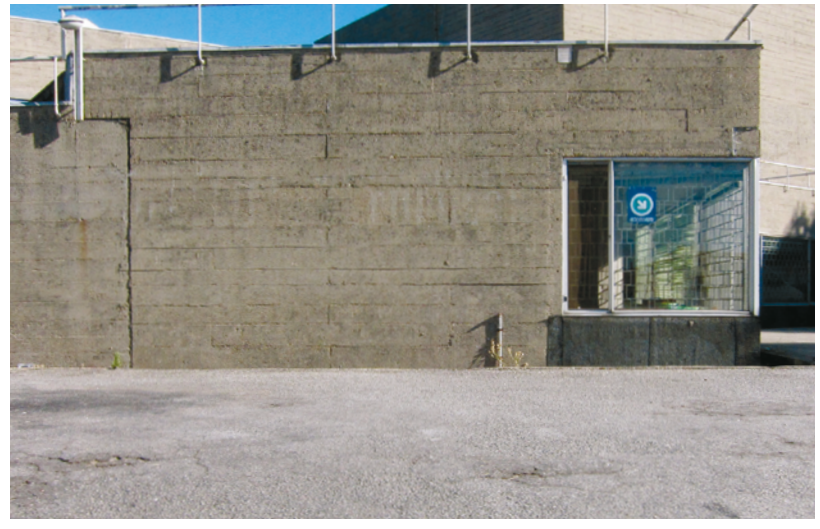




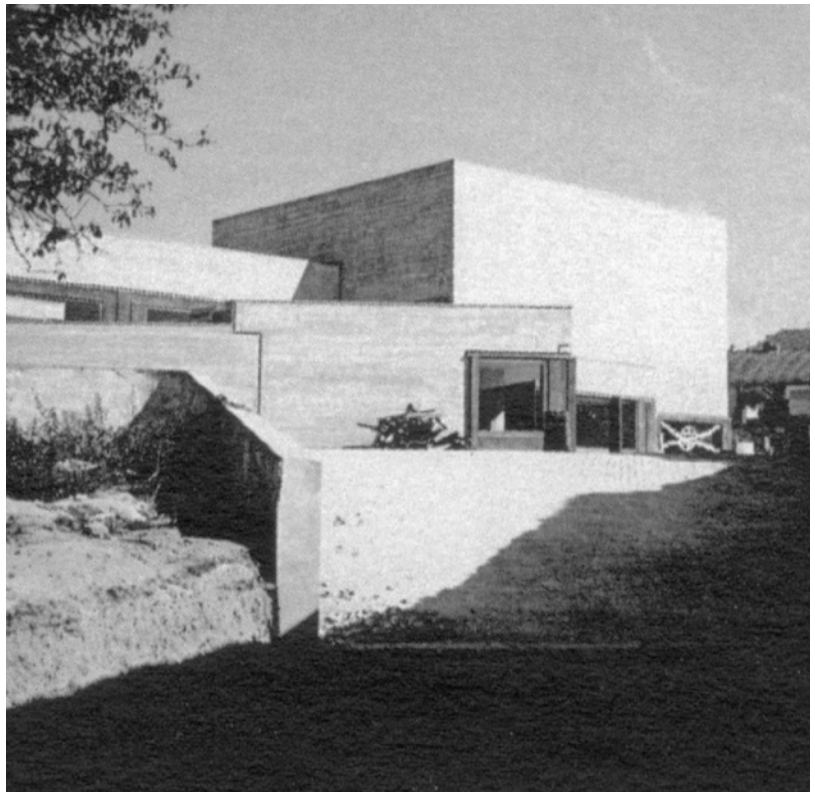
Figs. 0.4 a/b
Foreshortenings of
the South elevation.

Figs. 0.5 a/b
Frontal views of
the West elevation.

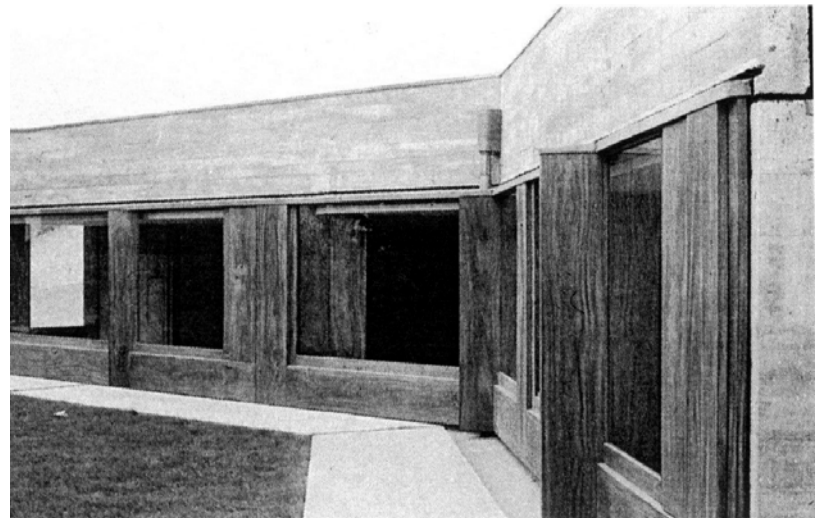




Figs. 0.6 a/b
Full views of
the West elevation.



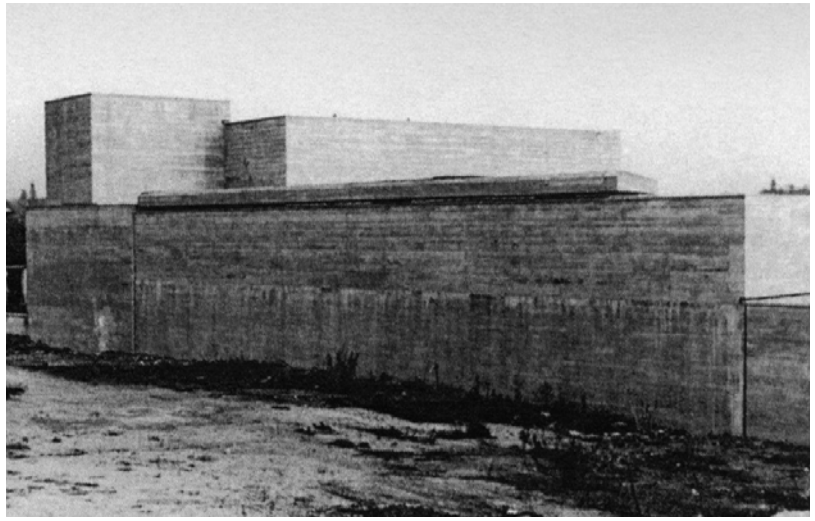
Figs. 0.7 a/b
Detailed views of
the South elevation.



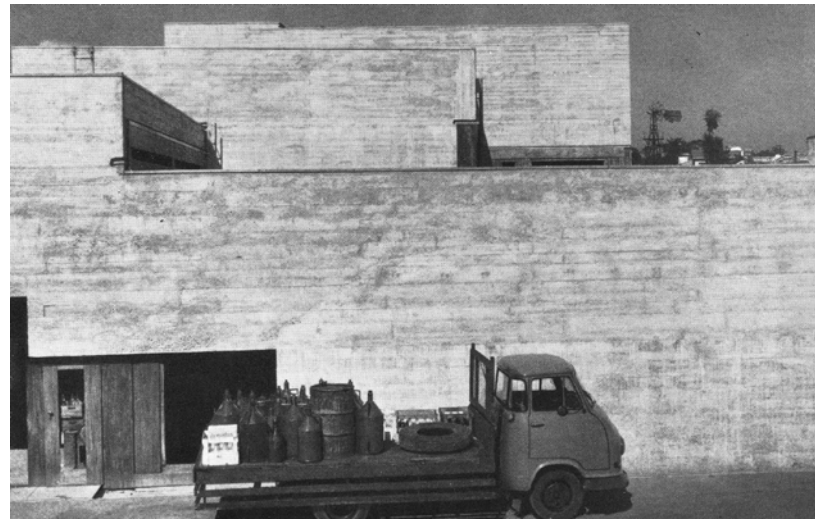
Figs. 0.8 a/b
Foreshortening and frontal detail view of the South elevation.

Figs. 0.9a/b
Foreshortenings (from opposite sides) of the East elevation.

Figs. 0.10 a/b
Foreshortenings
(from opposite sides)
of the North elevation.

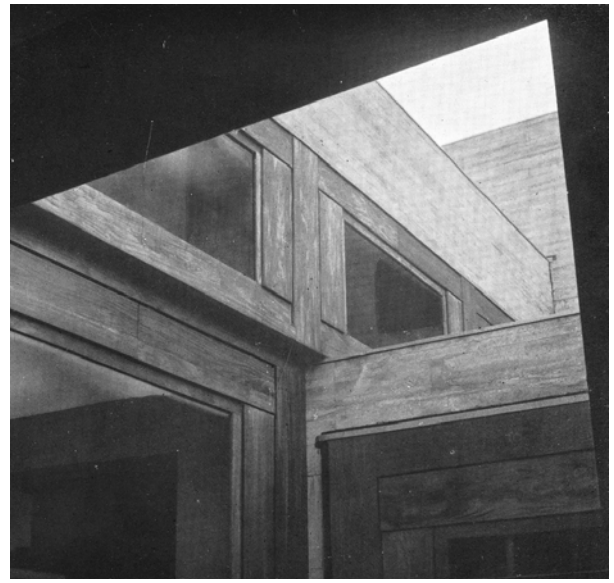


Figs. 0.11 a/b
Detailed views of
the West elevation.



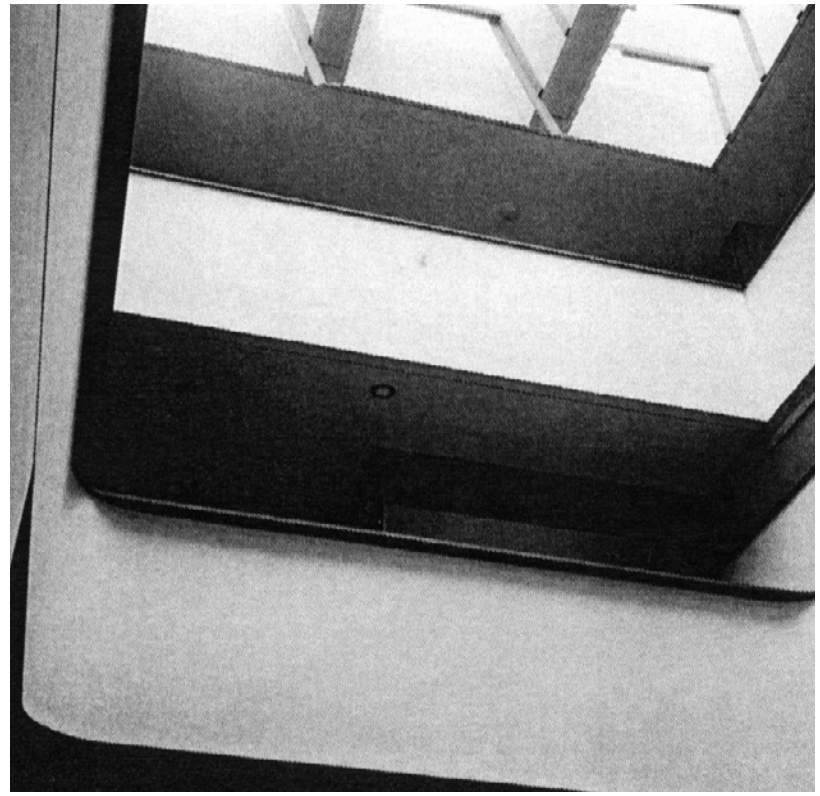
Figs. 0.12 a/b
The entrance hall.

Figs. 0.13 a/b/c
The food distribution hall and the small inner open courtyard.

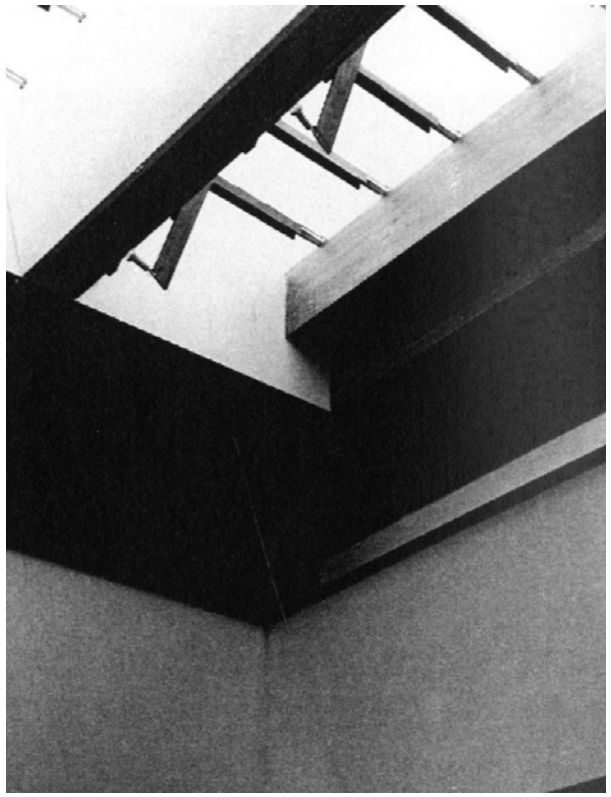


Figs. 0.14 a/b
Warehouse
– storage room.

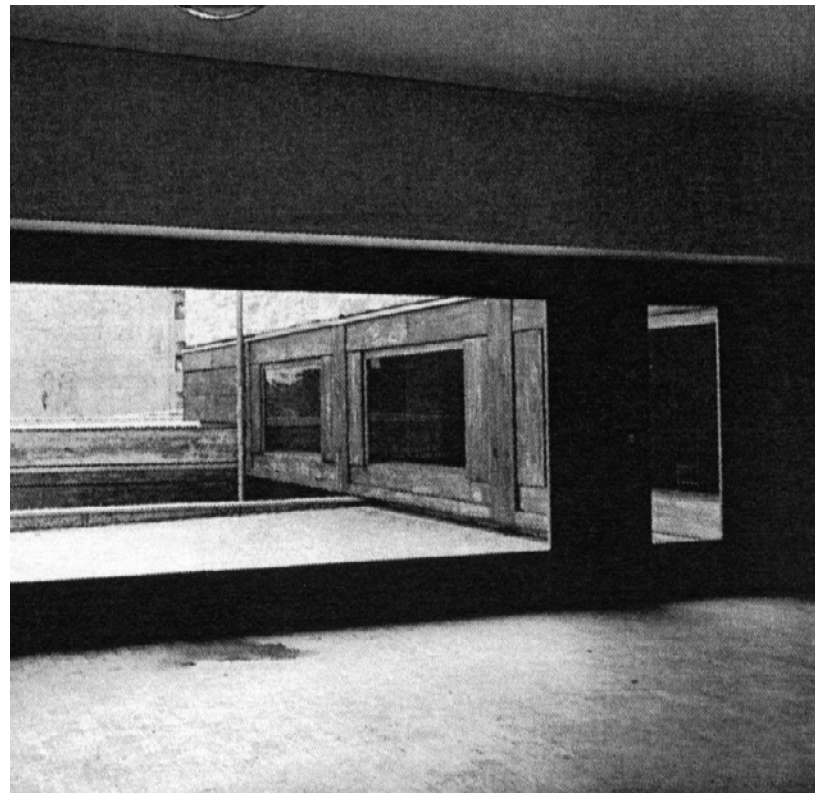
Figs. 0.15 a/b
Original three-story high sky-lit atrium in the taller cubic block and after it was sealed off at first floor level.

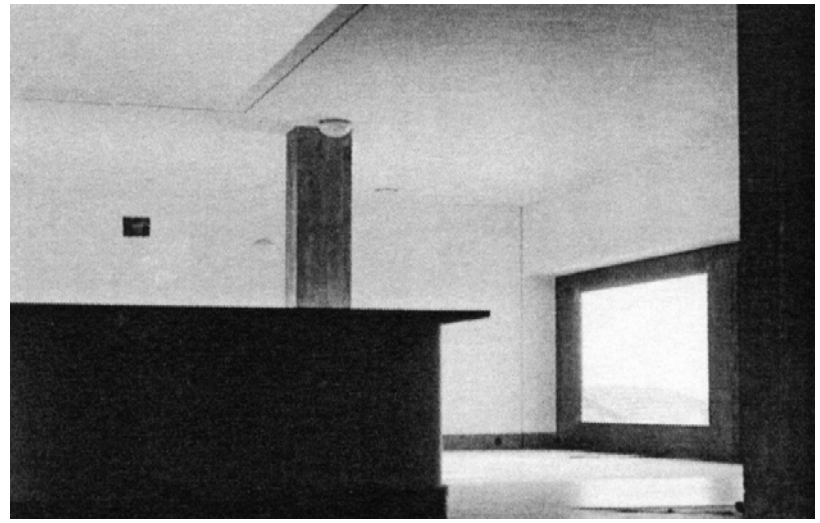


Figs. 0.16 a/b
Details of the skylight in the taller cubic block.



Figs. 0.17 a/b
The meeting hall's lobby (first floor).





Figs. 0.18 a/b
The meeting hall's lobby (first floor).

Figs. 0.19 a/b
Meeting hall (first floor).

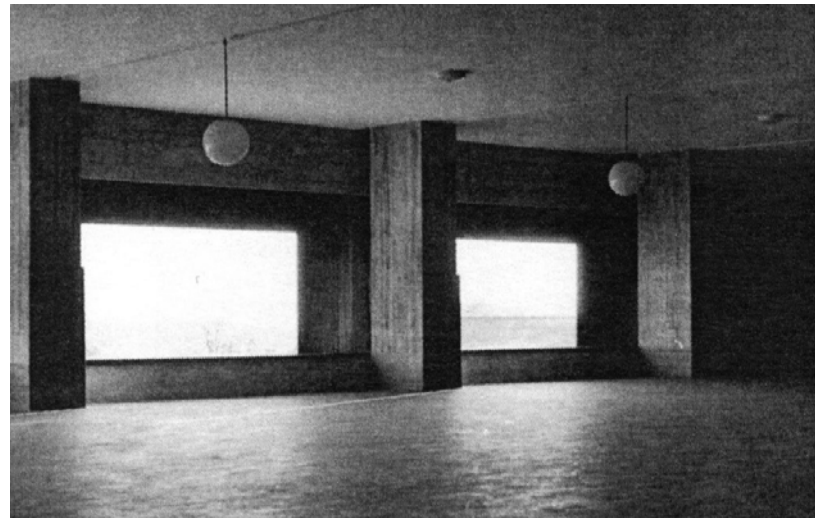


Fig. 0.20
The sky-lit atrium
at the second floor.

Fig. 0.21
Remnants of the original
wooden window frames.

The Lordelo do Ouro File within the Álvaro Siza Fonds / Archive

As transcribed fully below, in July 2014 Álvaro Siza announced and explained his decision to donate his whole archive of built and unbuilt projects (dating back to 1958) to three institutions, – the Serralves Foundation in Porto (SF), the Calouste Gulbenkian Foundation (CGF) in Lisbon and the Canadian Centre for Architecture (CCA) in Montreal.

"During the last years I have sensed the need to organize the archive of my many years of activity dedicated to architecture. The demand of students and architects to consult these files, and the suggestions I have received on how to make these documents accessible, has led me to seek out a well-considered solution. During this process the strong interest on the part of individuals and institutions was confirmed, which has touched and motivated me.

For some time now, drawings and models from my archive can be found in architecture collections in Paris (Beaubourg), New York (MoMA), and London (Niall Hobhouse Collection). It is my desire that so many years of work can become useful in many ways, as a contribution to the research and debate on architecture, particularly in Portugal and with a perspective opposed to isolation – as it is already taking place today and this is indispensable. I initiated some conversations, I listened to recommendations, and I have now formed my own idea on the way my archive should be organized, and how and where to locate it.

I have chosen to:

1. donate to two Portuguese institutions that already have the experience, quality and capacity to develop or enlarge their respective archives (Fundação Gulbenkian and Fundação de Serralves) with the goal of increasing access, dissemination and active participation in a debate that is no longer simply national nor centered on an individual.

2. donate to the Canadian Centre for Architecture (CCA) in Montreal, an institution of unequaled experience and prestige and with a sustained series of activities (exhibitions, publications, research, relations with other related institutions and large visibility). As the CCA is recognized for its experience in the preservation and presentation of international archives, it will care for a large part of my archive and make it accessible alongside the work of other modern and contemporary architects. Based on recent conversations, CCA is open to collaborate with Fundação Gulbenkian and Fundação de Serralves to establish a consistent cataloguing system and to share the research and related programming.

The Cultural Representative of the City of Porto, Paulo Cunha e Silva, has informed me of the decision to create an exhibition space for the architecture of the city, particularly focusing on models. I have expressed my support in participating to initiate this new collection and believe in the importance of this project for the general public and the debate on architecture."[14]

14. Álvaro Siza, statement published 23 July 2014 on the website of the Canadian Centre for Architecture (http://www.cca.qc.ca/en/collection/2459-alvaro-siza-s-archive accessed 12 September 2014).

According to information available in the websites of each one of these three institutions, the Álvaro Siza Archive contains in its whole around 60.000 drawings, 500 models, and 282 sketchbooks, and also includes textual documentation, photographic material and part of the documentation originally produced in digital format. The distribution of collections was as follows: the Serralves Foundation and the Calouste Gulbenkian Foundation's collections are focused on the architect's work in Portugal from 1958 to 2006,[15] while the donations to CCA[16] are international in scope and include both older and contemporary works. The archive will continue to be expanded with projects developed by Siza after 2012, like the two acquisitions made by the CCA in 2016, and another one more recently, in March 2019.

In September 2019 the University of Minho along with the Section on Architectural Records of the International Council on Archives organized the Congress "Professional Experiences in a Cultural Diversity", in Braga. Representatives of the three institutions that inherited Siza's Archive were invited to present and discuss the purposes and procedures of the work that has been developed since the donation. In the occasion, Mirko Zardini, who, as the Director of the CCA, was responsible for the reception of the legacy in question, pointed out that Siza's "decision to donate his archive to three institutions was made with the intention of not only selecting the best possible places for the management and preservation of the archive, but also, and perhaps more importantly, to foster a new model of collaborative, international research to promote public awareness of architecture in Portugal and throughout the world". He continued by adding that "the growing tension between local cultures and an international culture has complicated the question of how much the archives of modern and contemporary architects belong to the physical context that produced them, and how much they belong to the international culture that they contributed to, which had an equally significant impact in shaping them". He concluded by stating that "The sharing of the Álvaro Siza archive is for the CCA a way to respond to this duality. This strategy has several objectives: to reflect the different cultures and contexts in which the work was generated, to expose the material to diverse interpretations by researchers—scholars, curators, editors, architects, urbanists, and students—operating inside these different contexts, and to create a link among different institutions that can benefit from the confrontation of their different approaches, the cultivation of common strategies and learning from diverse ways of working".[17] Then, according to their own choice of standards, policies, backgrounds and institutional identities each one of the three institutions worked on their share of Siza's collection. Meanwhile, they collaborated frequently with each other, initially to set up the best practices for preservation and collection management

15. The Serralves Foundation holds documentation about 40 projects; those dealing with the Porto region, thus comprising the early works such as the Quinta da Conceição swimming pool in Matosinhos (1957-66) and later the Faculty of Architecture of the University of Porto (1979-97), several private houses, and of course the Serralves Museum of Contemporary Art. The Art Library of the Calouste Gulbenkian Foundation received records of 38 projects, among which the Expo'98 Portugal Pavilion, Terraços de Bragança complex, and the Setúbal College of Education. The Art library also received records of four projects commissioned by the Foundation: the Ballet set for "Quatro Árias de Ópera"; the Gulbenkian Foundation's stand at the Frankfurt Book Fair; the Gulbenkian Foundation's stand at the 18th Paris Book Fair; and the Calouste Gulbenkian Foundation Pavilion at the Expolingua Fair.

16. At present, the CCA holds the records for more than 200 architectural.

17. Mirko Zardini's full speech "Old Institutions, New Responsibilities" delivered at the International Congress on Architectural Archives "Professional Experiences in a Cultural Diversity" Braga, September 25th-27th 2019, has been reported on pages 11-16, in their volume of Proceedings published by the Arquivo Distrital de Braga in 2021 (also available at the University of Minho RepositóriUM http://hdl.handle.net/1822/70577).

18. "The standards used by the Art Library (CGF) are the Resource Description Format Unimarc, the International Standard Bibliographic Description (ISBD), the Anglo-American Cataloguing Rules, the Statement of International Cataloguing Principles (ICP) and the Portuguese Cataloguing Rules. (...) The CCA uses the archival descriptive standard ISAD(G) to describe all archives in its holdings, including the Álvaro Siza Archive. Records in this archive held by the CCA were described to the file level, with the bulk of the materials arranged in the Architectural Projects Series. Similarly to the other two institutions, the CCA arranged materials within this series into separate sub-series, with each subseries representing a set of records for a specific project". Such information, as well as a short version of the whole collaborating work between the three institutions, has been taken from the paper "Alvaro Siza Archive – A Shared Archive" by Adria Seccareccia, Martien de Vletter, Carla Seixas, Eunice Pereira, Mirijam Garcia and Sónia Oliveira (that was presented at the same congress mentioned in note 4).

19. Chiara Porcu, personal conversation in Porto, 17 May 2021.

criteria, and then to make the archive available for researchers and cultural institutions. The sharing of the archive is still a work in progress and the main goal is to create, over the years, new or more efficient ways to share the archive between institutions and their users. In fact, the commitment to collaboration was inherent to the donation process, and, right from the beginning, the three institutions worked together to reach an agreement about how to translate and standardize the titles of the architectural projects (i.e. assigning titles, identifying geographic locations in titles, and formatting titles for each project/file) and also how to integrate descriptive criteria to be used for the single items. They maintained and re-produced an arrangement that respected the order in which Siza's office organized the materials in its own archive within the archival standard protocol used by each one of them.[18]
By the way, it is worth mentioning that within Siza's own office documents and drawings were already being filed since 1998. Chiara Porcu was in charge of that as well as parallel tasks concerning the sorting out of old projects dossiers and cataloguing new ones. Interestingly, while still growing as vital matter for the very ongoing design activity of the office, Siza's archive was recognized (and therefore also handled) for its heritage value. Using the documentation for its instrumental value in the present and at the same time preparing the conditions to transmit its heritage value in the future, that is to say combining the practical needs of daily use with those of historical preservation, is proving a rather difficult challenge.[19] However evident, the way work is organized within the office and every little story associated with every project end up influencing the classification of documents. That may explain why the three institutions (SF, CGF and CCA), despite having kept their own organization standards, have also respected the archive's original order.

In view of the whole story summarized here, the complete documentation of the Lordelo do Ouro Cooperative Building is among those file projects acquired by the Serralves Foundation; and accessing its pertinent File in their website, we find the classification scheme reported below:

*ASV Arquivo Arquitecto Álvaro Siza Vieira*20 (ASV Archive)
- *08 Cooperativa de Lordelo, Porto, Portugal 1960/1970*21 (Lordelo do Ouro Cooperative Building)
  - *1 Peças desenhadas 1960/1970* (Drawings)
    1 Esquissos A4 (Drawings' Folder -1 sketches)
  - *x2 Capa A0 c/peças desenhadas – 65 doc.*
    (Drawings -Folder x2- A0 size - containing 65 pcs.)
  - *x3 Capa A0 c/peças desenhadas – 65 doc.*
    (Drawings -Folder x3- A0 size - containing 65 pcs.)
  - *x4 Capa A0 c/peças desenhadas – 65 doc.*
    (Drawings -Folder x4- A0 size - containing 65 pcs.)
  - *x5 Capa A0 c/peças desenhadas – 43 doc.*
    (Drawings -Folder x5- A0 size - containing 43 pcs.)
  - *x6 Capa A0 c/peças desenhadas – 43 doc.*
    (Drawings -Folder x6- A0 size - containing 43 pcs.)

- *2 Documentação textual 1960/1970*
  (Text documentation 1960/1970)
  - *1 Documentos referentes ao Ante-projecto, Projecto e sucessivas alterações – correspondência 1960/1970*
    (Documents - Folder 1 - relating to the Preliminary Draft, Project and successive alterations - 1960/1970 correspondence)
  - *2 Documentos referentes ao Ante-projecto, Projecto e sucessivas alterações – peças desenhadas 1961/1963*
    (Documents - Folder 2 - concerning the preliminary project, project and successive alterations – with drawings 1961/1963)
  - *3 Documentos referentes ao Ante-projecto, Projecto e sucessivas alterações – apontamentos e contabilidade 1960/1963*
    (Documents - Folder 3 - relating to the Preliminary Draft, Project and successive alterations – 1960/1963 notes and accounting)
  - *4 Documentos fornecidos pelo Arquitecto António Jacobetty 1959–1959* (Documents - Folder 4- provided by Architect António Jacobetty 1959–1959)

What now follows is our annotated description of each one of the six folders of drawings and the four folders of written documents, which precisely compose the File of the Lordelo Cooperative, Porto, Portugal 1960/1970 in the Álvaro Siza Fonds/Archive (ASV Arquivo Arquitecto Álvaro Siza Vieira) at Serralves Foundation.

– Drawings -Folder 1- (Reference code PT/FS/ASV/08-1/1) / Sketches: Here we find fifty-nine pieces of documentation consisting of free-hand drawings that are all related to this project even though not distinguished, entitled nor dated, as regards to the phase of the project they refer to. According to Álvaro Siza's well-known working method, and seemingly defined and implemented

20. http://arquivos.serralves.pt/details?id=72490

21. http://arquivos.serralves.pt/details?id=73147

even at the earliest stage of his career, those sketches concern the exterior profile of the Building as plastic aggregation of functional volumes, which are at the same time articulated by the quality of its interior spaces. About twenty drawings (out of the total number) "investigate" the windows' wood apparatus to be juxtaposed to the rough concrete massive structure. These drawings illustrate, as if in a sequence of photo-frames taken from the process of invention, the search for coherence between the whole system and its construction details in particular. In fact, each one of those drawings seems to be linked both to the previous and following one, as if they completed each other in quick[22] glances which intermittently include the detail **[Fig. 0.22]**.

– Drawings -Folders x5-, x3- and x4- (Reference codes PT/FS/ASV/08-1/x2 -x3 and -x4) / Scale Drawings: there were sixty-five pieces of measured drawings collected in those A0 format folders, which in the whole can be considered as in-depth studies of selected portions of the Building, or individual elements and their logic of aggregation. They may or may not report an indication, may or may not be dated, may or may not be signed. They are mostly pencil drawings, but there are also several pieces which combine ink and pencil. They concern the meticulous specification of the finishing of the rooms, complete construction details of the wooden windows (and doors and skylight) framework system, and also the full design of an original set of furniture (based on the modular aggregation of a reduced number of pieces). As regards to the wooden framework apparatus, an extremely close detailing is given by the largest number of drawings, that reveal the full immersion, and therefore, the literal participation of the architect in the very material process of its construction. Similar care given to the formal expression of construction details is also revealed by those other drawings that, concerning one or another specific part of the interior design of the Building, are aimed to achieve a coordinated organization of the small scale qualities of the construction **[Fig. 0.23 and 0.24]**.

– Drawings's Folders x5- and x6- (Reference codes PT/FS/ASV/08-1/x5 and x6) / Scale Drawings: forty-three pieces of measured drawings were collected in those A0 format folders, which (except for a few ones concerning the urban scale layout) are mainly dealing with the representation by plans, sections and elevations at scale 1:100 of the whole Building. They report theme indication, and they are nearly all dated, even though they may or may not be signed. Those are the ink drawings that document the variations of the project until the final version, which was submitted to the municipal authority for construction authorization. Among those drawings, some plans also integrate information about technical aspects of the electrical system, sewage and rainwater collecting networks. Another interesting peculiarity is that those overall drawings also show the details

22. Such adjective was used by Kenneth Frampton on his substantial analysis of Siza's free-hand drawing design operability "Sketching. Álvaro Siza's Notes" in Lotus (Milan), n. 68, March 1991, p. 73.

of the different layers of the construction (i.e. reinforced concrete structures, stone masonry and light brick masonry walls). Such attention also reveals a general concern for build quality by applying a design method, which has been (and will remain) empirical since this initial experience of exploration of the plastic qualities offered by reinforced concrete.

– Documents' Folders 1-, 3- and 4- (Reference codes PT/FS/ASV/08-2/1, 2/3 and 2/4)[23] According to the description given in the SF website these folders keep textual "Documents relating to the elaboration process of the various phases of the project and execution of the Cooperative – including the correspondence exchanged with António Jacobetty.[24] Álvaro Siza and the Cooperative of Lordelo do Ouro, correspondence with the Municipality of Porto and various receipts proving request for building permission, collection or delivery of documents from or by that institution, design description memorandum, term of responsibility, tender programs for the construction of the work and its technical specifications, notes of fees and budget proposals". For a comprehensive understanding of the project and the developments which led to its built version, that textual documentation is an essential complement to the drawings; in fact, this is where the building shows itself as the collective result of the process of interaction of several players with different roles and stakeholders with different interests. This also means that such documentation may keep the material traces, even of the contrasts occurred among those players in action, for posterity. Specifically with regard to the archival papers of the construction process of the Lordelo do Ouro Cooperative Building, André Tavares, as also mentioned in the Introduction, has reconstructed[25] all the affair that in 1969 led to the dismissal of Álvaro Siza from the continuation of the project by the management of Cooperative.

Since this event corresponds to the real turning point in the history of the Building, we transcribe below the translation of some excerpts of the *memoria descritiva /design report* that Siza sent to the managers of the cooperative to respond to their allegedly technical complaints, also proposing appropriate solutions, which unfortunately were not applied. Furthermore, we explore the importance of the contents of this report ahead in chapter 3.

> *"1 – Background: A few years after the opening of the Lordelo do Ouro Cooperative Store head office we have detected the need for improvement [...] works in the premises [...]. Essentially the suggestion made by the Management amounted to the replacement of the window-frames, possibly with anodized aluminum profiles, and an increase of the total area of the building by extending it to the first floor inner courtyard and the central open spaces of the 3 floors (since further occupation of the site would not comply with regulations).*

23. As regards to the -Documents' Folders 2, (Reference code PT/FS/ASV/08-2/2) it should be specified that the blueprints of the original measured drawings saved in Drawings' Folders x5- and x6- have been collected here. In addition, we have other blueprints, whose originals have not been found. Some original drawings may have been lost, but it is more likely that those blueprints correspond to original drawings (ink on transparent tracing paper) which were scraped and modified in some parts, according to a practice of that time. Therefore, they can somehow be considered originals which document intermediate stages of the design.

24. He was a Lisbon based architect, who was designing buildings for the cooperatives in the south of Portugal and who proposed Álvaro Siza to be commissioned to design the Lordelo do Ouro premises, according to the new model of distribution, in which associates could have direct access to goods in the shelves.

25. André Tavares, *Matéria-Prima: Um olhar sobre o arquivo de Álvaro Siza / Raw Material: A View of Álvaro Siza's Archive*, Fundação de Serralves / The Serralves Foundation,

> *2 – Conclusions of the studies carried out: After several meetings with the Management and after the objective analysis of several possible solutions, based on economic and technical aspects and on the formal cohesion of the building we can now present the conclusions that are relevant to address the issues that were encountered and to gradually adapt the building to current and future needs, possibilities and interests of the Cooperative.*
>
> *Conclusions for the paragraphs defined in 1 above:*
> *2.1 – Conservation issues due to wear and tear or defective materials and finishes*
>
> *2.1.1 – The protection of the plastered walls in high traffic inner areas has been initially planned although it was not carried out due circumstantial economic constraints. Paneling will be installed in a material depending on economic feasibility study (chipboard, plywood or high-pressure laminate).*
> *[...]*
>
> *2.1.3 – Despite being affordable, treating the framework with flaxseed oil requires that it be applied in periods not exceeding one year. Failure to do so caused an apparent deterioration of the wood's state that does not correspond to reality, as can easily be seen. One would consider that the excellent wood used (afzelia) is in very good state and definitely does not need to undergo a costly replacement. On the other hand, some obvious problems (displacement of some of the vertical parts and poor insulation of the glass fastening system) are not due to the material used. These problems are easily solved, even if the process of fastening the framework to the lintel (when cantilevered), which should neutralize any movements, is relatively complex. Besides the afore mentioned measures, we propose the use of enamel for the framework, which is far more durable, when well executed, and makes the building look better while requiring standardized conservation practices'.*
>
> *[...] Replacement with aluminum profiles, a material with its own conservation issues (the durability of anodized materials is limited), would not solve by itself the current basic problems and would be extremely costly and inconvenient for the functioning of the building as it would entail other specialty work and pose considerable problems to the possibility of using the large crystal surface. In my view (as the author of the design) this would also be a problem in terms of the spirit and characteristics of the building.*
> *[...]*
> *Porto, 15 July 1969 – ÁLVARO SIZA Architect"*

Therefore, after July 1969 Álvaro Siza no longer had anything to do with the Building, which was going to meet a fate characterized by improvident alterations. We found documentary evidence of those alterations in the General Archive of the city of Porto, namely corresponding to file number 140443 dated 1971–1972 as regards to the substitution of the wooden windows, the sealing of the first floor slab in the original three story high

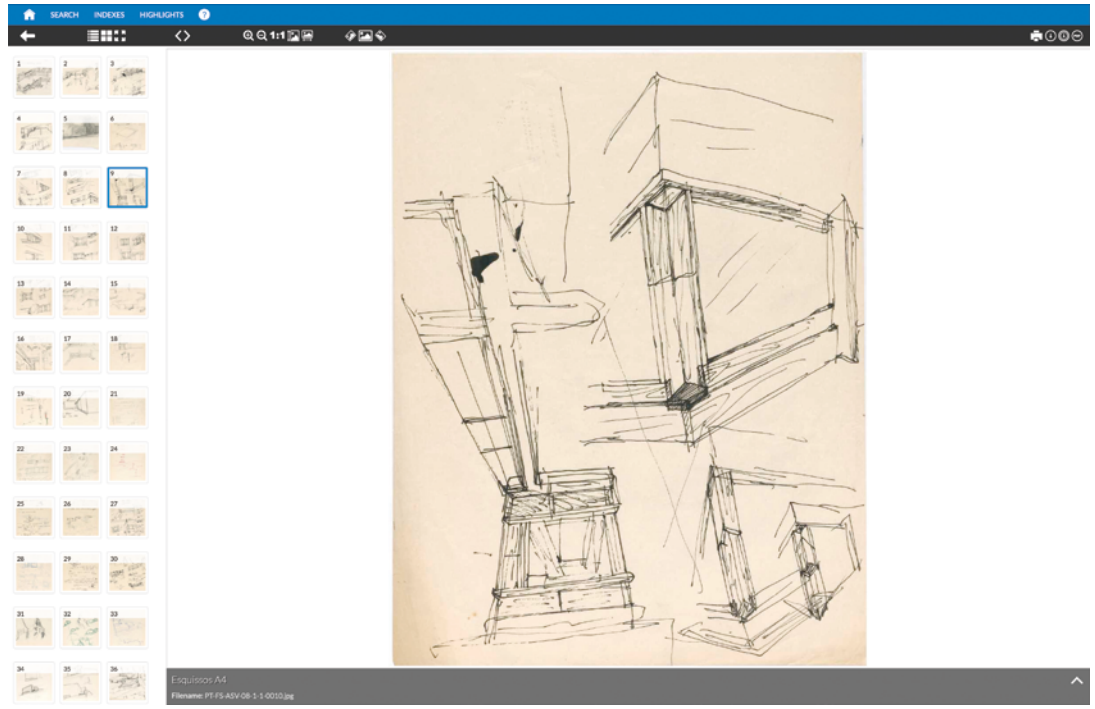
Porto, 2017, pp 84–114.
26. The engineer who had been responsible for structural calculations was César Augusto Ferreira de Miranda Montenegro.

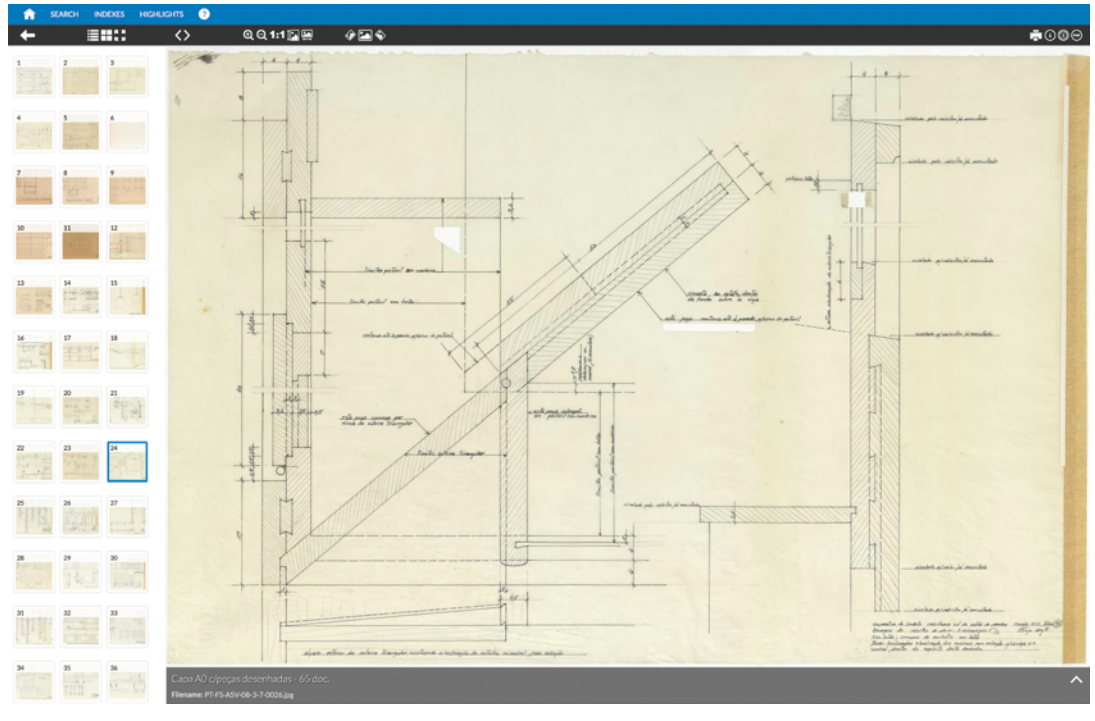
entrance hall and the sealing of the small patio inside the sales hall **[Fig. 0.25]**. In addition, there is file number 158615 dated 1984–1985 which concerns the demolition of the sentry box at the gate onto Rua Professor Augusto Nobre and the construction of a garage on the south side of the compound, which had been purposely enlarged by the acquisition of the adjacent plot **[Fig. 0.26]**. Full documentation of the original design configuration in scale 1:100 is also saved at the General Archive of the city of Porto with the file number 124901 dated 1961/1962; it corresponds to the documentation attached to the request for building permit of the new headquarters of the Cooperative. Among such documentation we find also the detailed calculation of the reinforced concrete structures;[26] notably this is a piece of information that is not present in Siza's archive, and which could be useful in any future structural repair work.

In conclusion, beyond the historical certainty of the succession of events, what we searched for in the General Archive of the city of Porto was the access to the full extent of the documentary evidence of the building process as an aid to reading and interpreting the material reality of the built object, even after Siza's dismissal.

Fig. 0.22
Archival sample (document PT-FS-ASV-08-1-1-0010.jpg abstract from Drawings -Folder 1-) of an Álvaro Siza's original design sketch, as available on SF's website. We find here represented the detail corner vertical elements of the original hardwood ribbon windows at the southward side of the sales hall – see also Figs. 1.48 to 1.51 (Álvaro Siza Archive © Serralves Foundation).

Fig. 0.23
Archival sample (document PT-FS-ASV-08-3-7-0026.jpg abstract from Drawings -Folder x2-) of an Álvaro Siza's original design measured drawing in scale 1/2, as available on SF's website. We find here represented the same exact detail corner vertical elements of the original hardwood ribbon windows at the southward side of the sales hall – see also Figs. 1.48 to 1.51 – (Álvaro Siza Archive © Serralves Foundation).





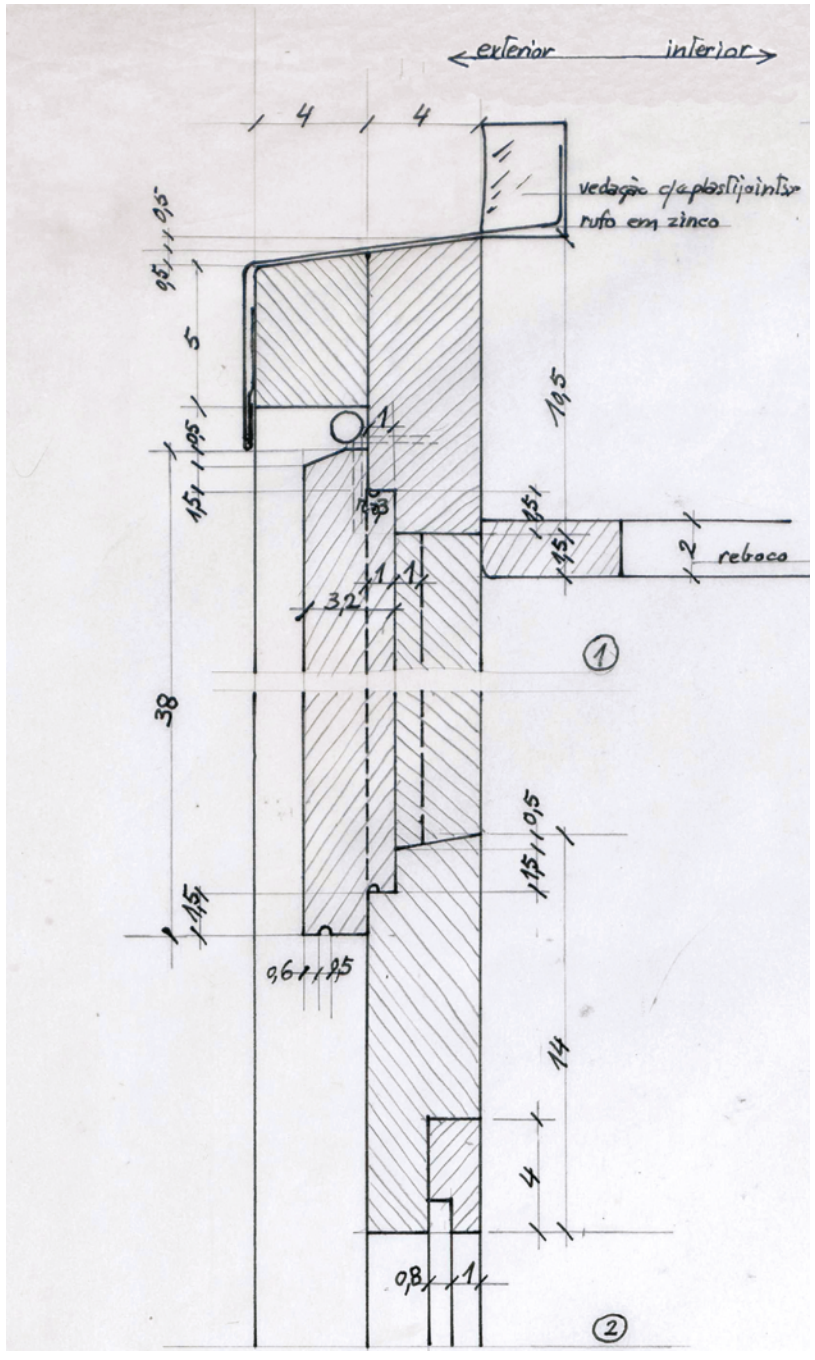


Fig. 0.24.
Vertical section construction detail of upper side sealing joint between the original hardwood windows' framework and the rough concrete wall structure. Abstract from drawing document PT-FS-ASV-08-3-7-0039 (Álvaro Siza Archive © Serralves Foundation).

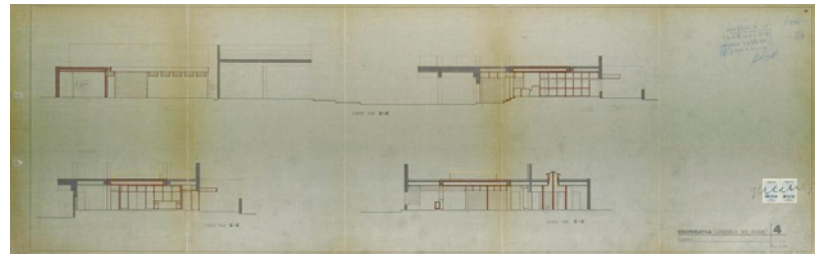


Fig. 0.25
Archival sample (document LO-1972-0046-0010.jpg abstract from File number 140443) concerning some of the alterations operated (1971-1972) on the Building after Siza's ousting- (© General Archive of the city of Porto).

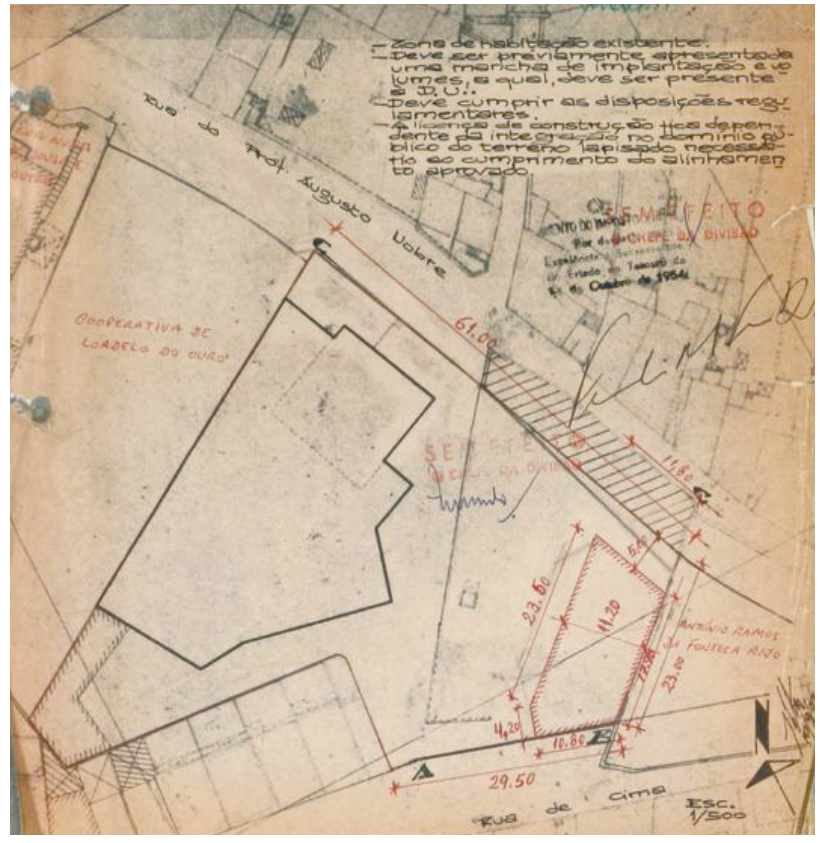


Fig. 0.26
Archival sample (document LO-1989-0327-0009.jpg abstract from File number 158615) concerning some of the alterations operated (1984–1985) on the Building after Siza's ousting – (© General Archive of the city of Porto).

Workout

1. Study of the Original Project

The guaranteed support of Serralves Foundation (Museum of Contemporary Art of Porto), gave us access to the full documentation of the original design process, i.e. drawings, sketches, text papers, calculation sheets, letters, and photographs concerning the Building. Moreover, interviewing Álvaro Siza allowed us to clarify some doubts directly, and also inspire the launch of the study on the Building.

Besides reading historic/critical essays about early Siza's works, the students' task consisted of the elaboration of a number of *analytical drawings* aimed to understand the building in terms of urban, spatial and constructive organization.

Furthermore, due to the identified losses (also described in the Prologue), which include the wooden windows' framework, and their grievous consequences for the Building, a special effort was dedicated to the analysis of original design documents for each of those parts. Namely, the applied methodology was progressively improved in previous studies[27] and based on a process of perceiving by drawing, or, to be more exact, by re-drawing. Of course, they should not be regarded as a copy of the original drawings, but rather as new (meaning different) drawings of those same (missing) elements. This process has been operated through axonometric projections, to reconstruct (at least partially) the organization of the space and the framework system, and all of the other wooden structures that were fundamental elements of the raw concrete structure.

In other words, this analysis, based on re-drawing through axonometric projections, led to the collection and synthetization of some of the information spread throughout the numerous documents and photographs on the Building's original state, aimed to enable a synthetic comprehension, in which constructive conception and material appearance were added in single cutaway views.

For instance, as regards a conservation perspective, we thought that even before considering any potential reconstruction we should try to learn more about it.

Additionally, and especially as a pedagogical experience, we think that the lost wooden apparatus of the Lordelo Cooperative – just to mention the most evident example – demonstrates at best that Álvaro Siza's legacy should be intended not only as a conceptual artistic value, but also as a practical resource of technical solutions, whose materiality incorporates historical and cultural characteristics.

As a collective result of this work, here follows a commented sequence of drawn pieces which should be seen as a brief reconstruction of some of the original features of the Building and the design reasons they derived from. It comprises three sections and goes from an overall scale to a construction detail one.

27. See V. Riso (2008), *Technology and Place in the experience of Modern Project. Three-parts essay through the analysis of significant case studies* in Twentieth century architecture. Rome: Fondazione Bruno Zevi, 2008 and V. Riso (2014), "Re-drawing operations: methodology questions and results", in Tostões, Ana (editor), *Modern Architecture in Africa: Angola and Mozambique*, IST Press, Lisbon, pp. 18–23.

1.1

The site context and the Building settlement

Lordelo do Ouro neighborhood, in Porto, is located on the right bank of the Douro river; within this area, sloping down towards the river, the Cooperative Building occupies a triangular allotment at the intersection of the streets *Rua de Cima* and *Rua Professor Augusto Nobre* **[Fig. 1.1 and Fig. 1.2]**.

At the time the Building was designed, this urban district was punctuated by some stretches of low rise row-houses, which were mainly inhabited by the families of the caulkers who worked at the shipyards settled on the river banks, and by the monumental presence of the Serralves Villa and its surrounding vast gardens. That same limited historical fabric has been burdened throughout the years with many towers and slab housing buildings that have been filling the whole of the valley landscape. Yet at a closer scale, we were able to observe how the north side of the Cooperative's allotment remained unoccupied; that is also due to the fact that a few years after the Building's completion, the Cooperative acquired that adjoining plot in the perspective of an expansion, which ended up not happening. Nevertheless, the Cooperative acquired a triangular plot on the opposite south side corner, having built there a separate garage.

As also previously mentioned, none of the interventions that followed the originally 1963's completed project was afterwards designed by Álvaro Siza.

The articulation of the different functional volumes of the Building corresponds to slightly different floor levels that accompany the slope of the ground on the south side, while on the north side a continuous wall bears the ground, also emerging as a full length blind façade **[Fig. 1.3]**.

On the south side, the continuity between the inside and the outside is provided by a walkway adjacent to the façade which connects the opposite roads. At the main entrance of the Building (onto Rua Professor Augusto Nobre) this passage was accentuated by the separated presence of a sentry box, a low prism shaped against the limit of the plot and displaying the same rough concrete construction as the whole Building **[Fig. 1.4]**. Such entrance was only meant to be pedestrian, while the access to goods was placed on the other side facing Rua de Cima. As observable only in historical photos, the surface in front of the described passageway was initially configured as a lawn; in fact, when the garage was built in 1984, the sentry box was demolished, the lawn was paved in asphalt and both entrances were opened to cars **[Fig. 1.5]**.

Fig. 1.1
Lordelo do Ouro neighborhood on the map of the city of Porto (drawing by Tatiana Campos).

Fig. 1.2
Territorial section spanning from the Lordelo do Ouro Cooperative Building up to the bank of the Douro river (drawing by Júlio Ferreira).

Fig. 1.3
Axonometric view of the topography of the site of the Building before its construction (top) and same viewpoint (down) identifying the staggered plans of the Building that are in contact with the ground – the cyan lines represent the demolished or altered parts (drawings by Júlio Ferreira).

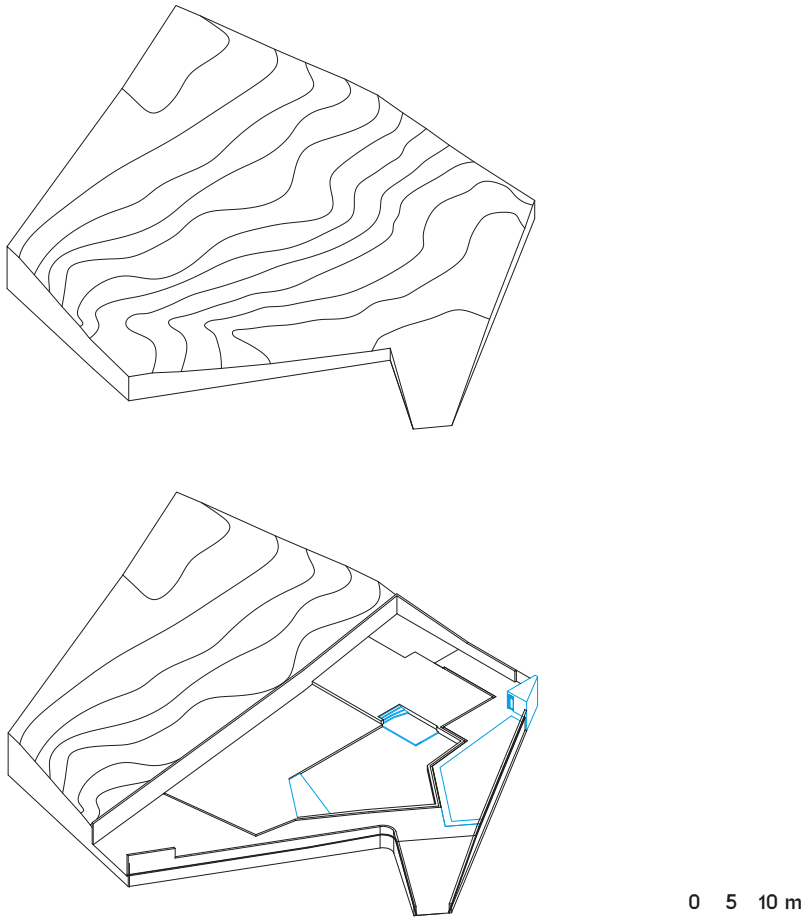


Fig. 1.4
Historical (1960–63) picture of the main entrance of the Lordelo do Ouro Cooperative Building (Álvaro Siza © Archive Serralves Foundation).

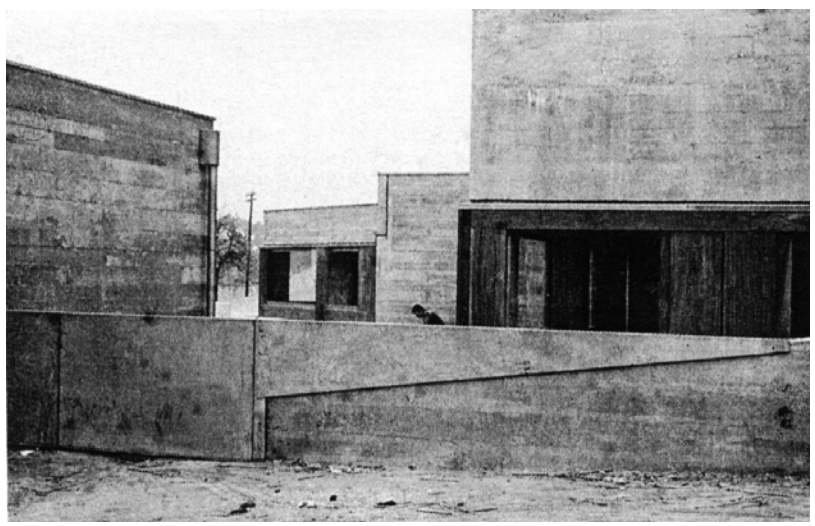


Fig. 1.5
Layout plan of the open space outside the Building as it was in its initial condition, in 1963 (top), and (down) after the 1984 alterations (drawings by Elsa Gonçalves).

1.2

The functional organization of the different halls/rooms

As observed above, the volume composition follows the southward sloping terrain – a main taller body stands out and reveals the slight excavation operated during the Building's settlement. The overall plan is determined by a kind of adaptation of the customer's functional program to the specific geometry and topography of the given plot of land. In fact, the Building is juxtaposed to the northern section of the plot, which is the longest. This delimitation continuously supports the aggregation of the different functional spaces that are also endowed with inner sources of natural light and ventilation.

As observable from the outside, the aggregation of the various volumes enhances the autonomy of the parts, just as it gives a dynamic character to the whole mass of exposed concrete surfaces **[Fig. 1.6]**.

The lower volume (in height), with a larger polygonal plan, accommodates the sales and storage rooms, while the taller, squared block, where general access was placed (in the South side), shelters a three-story high atrium surrounded by recreation spaces and staff offices. A medium height volume, placed above the storage room, contains the cooperative's assembly hall, to be reached by the only staircase in the Building which is adjoined to the North side of the three levels volume.

Besides the substitution of the wooden windows, occurred in 1971 after Lordelo do Ouro Cooperative's management laid Álvaro Siza off, more alterations were operated on the Building[28] and the description of the inside spaces, as they were in the original configuration, ought to be based on the observation of their current altered state **[Fig. 1.7]**.

The hardest alteration consisted in sealing off the first floor slab in the – previous – three-story high entrance hall, so as to 'infill' the – resulting dark – lobby in the sales area with more office spaces. Notably, in the original design (of the main entrance) there was no direct access to that area (previously developed as an unforeseen U shaped path also meant as a social space), which ended up earning some evocative value due to its (lost) natural lighting. This specific alteration of the ground floor also implied the reduction of the public restrooms' space; consequently, previous ceiling lighting-openings had to be closed too **[Figs. 1.8 to 1.12]**.

Similarly to the entrance square prism, in the lower volume, the same introverted space organization functioned as natural lighting and ventilation. This corresponded to an interior – *impluvium* like – courtyard placed between the sales area and the storage room, where an oblong shaft along the northern wall allowed cross ventilation. Again in an attempt to increase usable area, that patio was lost with the 1971 alterations, that is to say

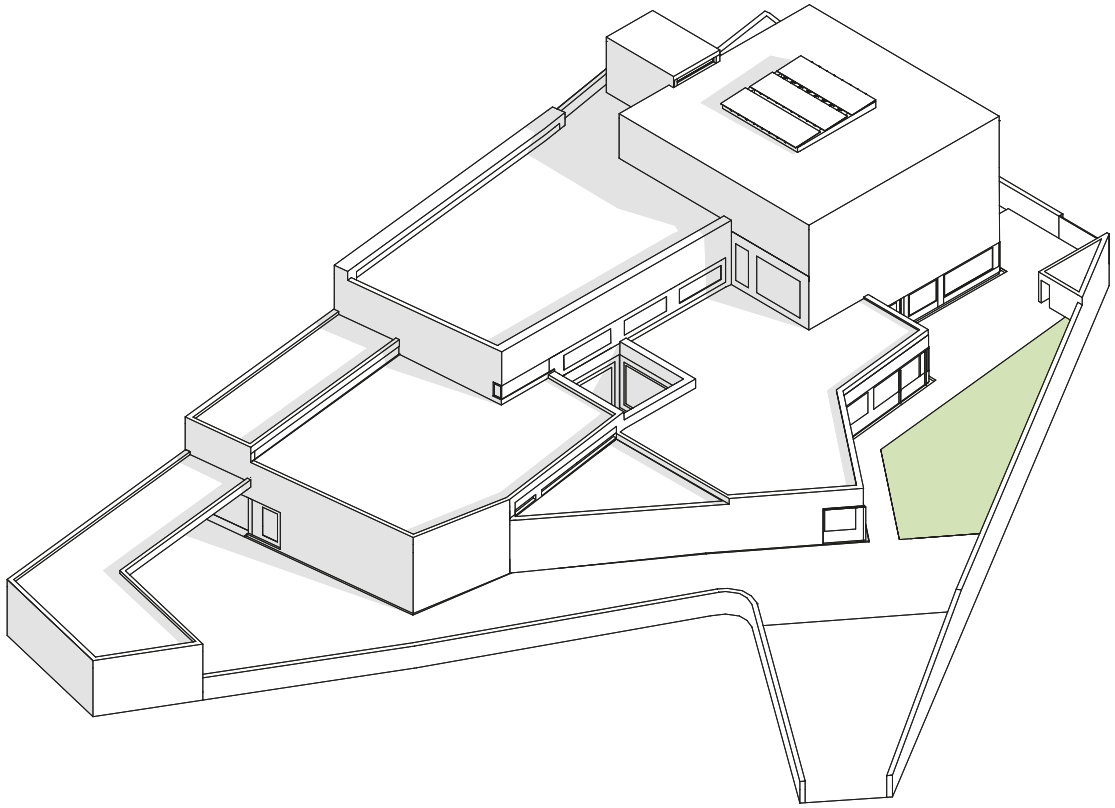
28. Documentation on all the alterations made after the completion of the Building is kept at the General Archive of the city of Porto in files numbers 124901, 140443 and 158615.

it was sealed off at the level of the roof and its former surface was integrated in the sales area.

On the first floor, right above the storage room, we find the assembly room, where large windows facing south and the same air shaft that serves the underneath storage, on the north side, work as crossed ventilation **[Figs. 1.13 to 1.19]**.

Concluding the tour around the main parts of the Building, we go back to the three-story high entrance hall to observe how a continuous flow of space and natural light also involved the staircase's adjoining volume. With regard to this portion of the Building it ought to be mentioned that when the first floor slab was sealed off and the full height atrium was reduced to the first and second floors the distribution of the restrooms on the first floor was also altered, while that of the library room on the second floor remained almost unaltered **[Figs. 1.20 to 1.26]**.

Fig. 1.6
Isometric view of the whole articulation of the composing volumes of the Building, as of the original 1963's completed project (drawing by Leandro Alves).



0 5 10 m

Fig. 1.7
Splitting up the Building showing the articulation of the different volumes and levels, as of the current altered state of spaces and materials (drawing by Fabio Gonçalves).

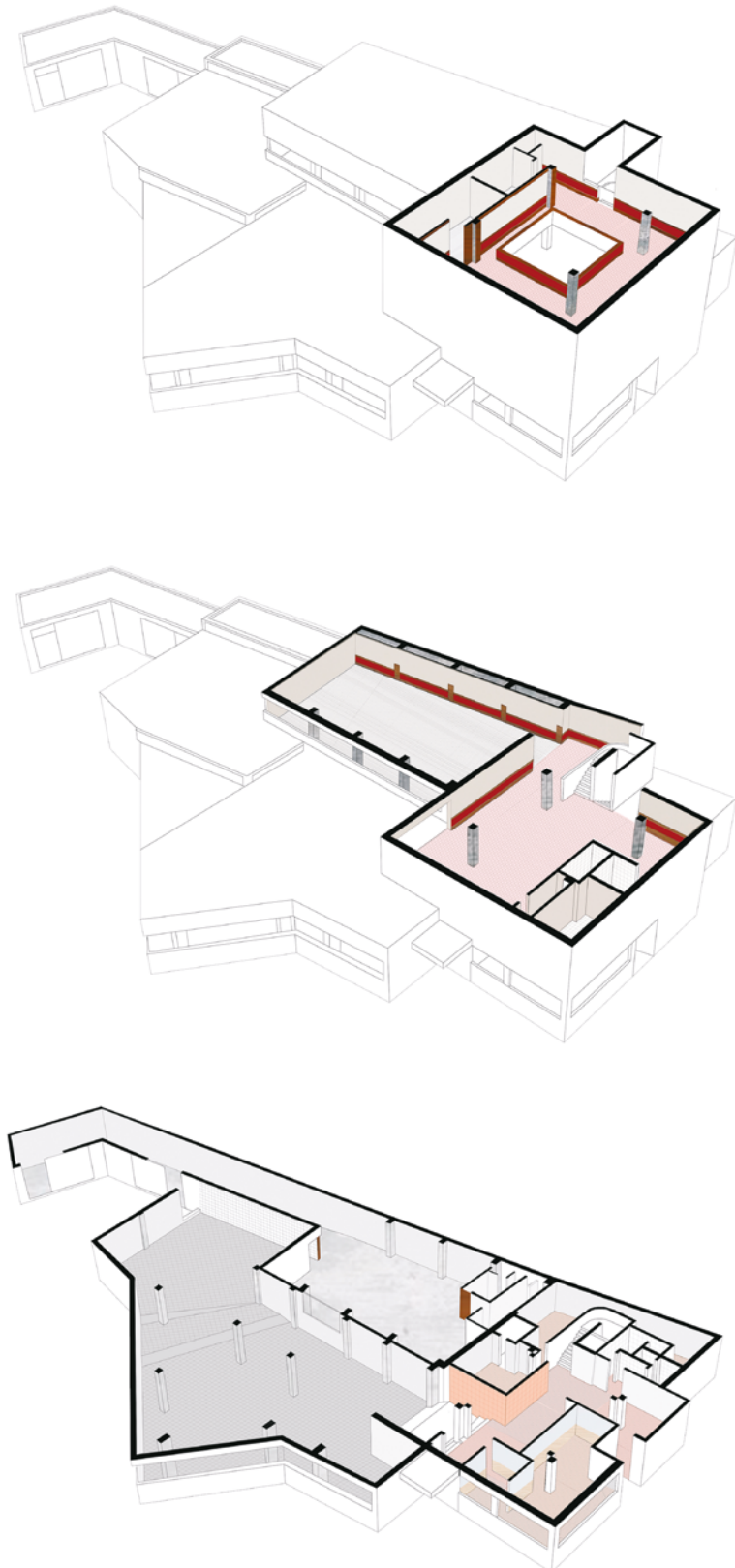


Fig. 1.8
East-west axonometric section of the three-story block, where the entrance lobby was located – the cyan lines represent the demolished or altered parts (drawing by Inês Torres).

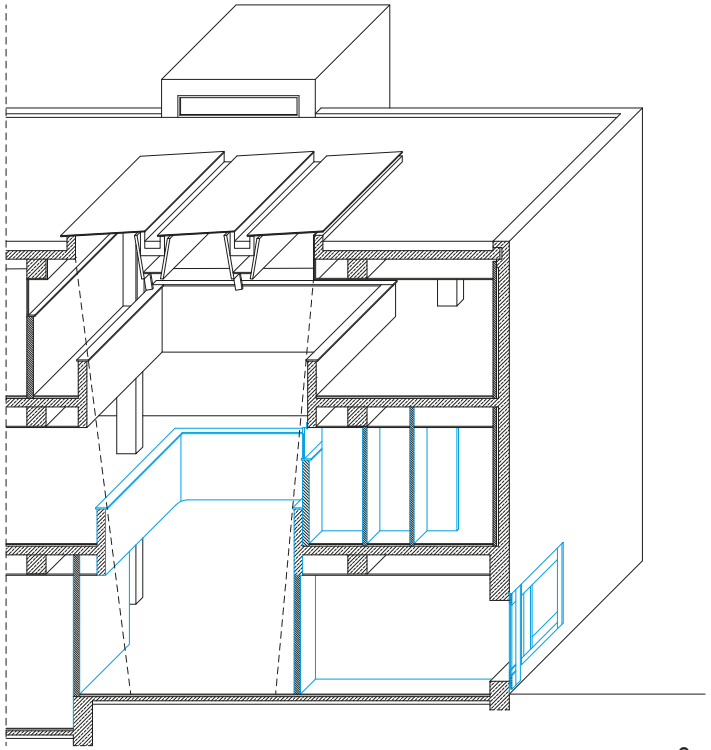


Fig. 1.9 and 1.10
Images (1960–63) of the three-story block and entrance lobby in their original configuration (Álvaro Siza © Archive Serralves Foundation).

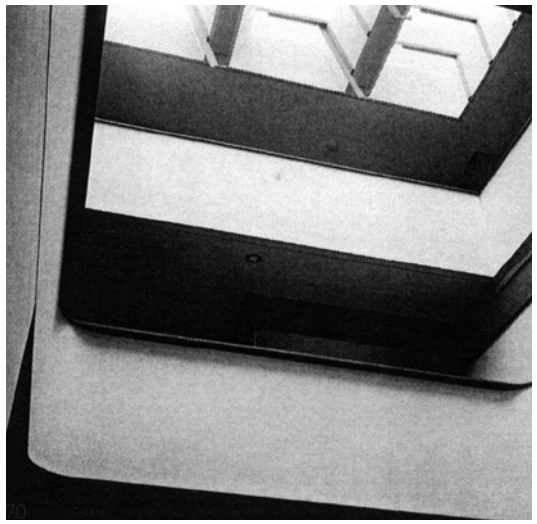


Fig. 1.11
Axonometric plan of the entrance lobby of the Building – the magenta line indicates the original/ indirect path from the outside to the sales area, and the cyan lines represent the demolished or altered parts (drawing by Carla Lopes).

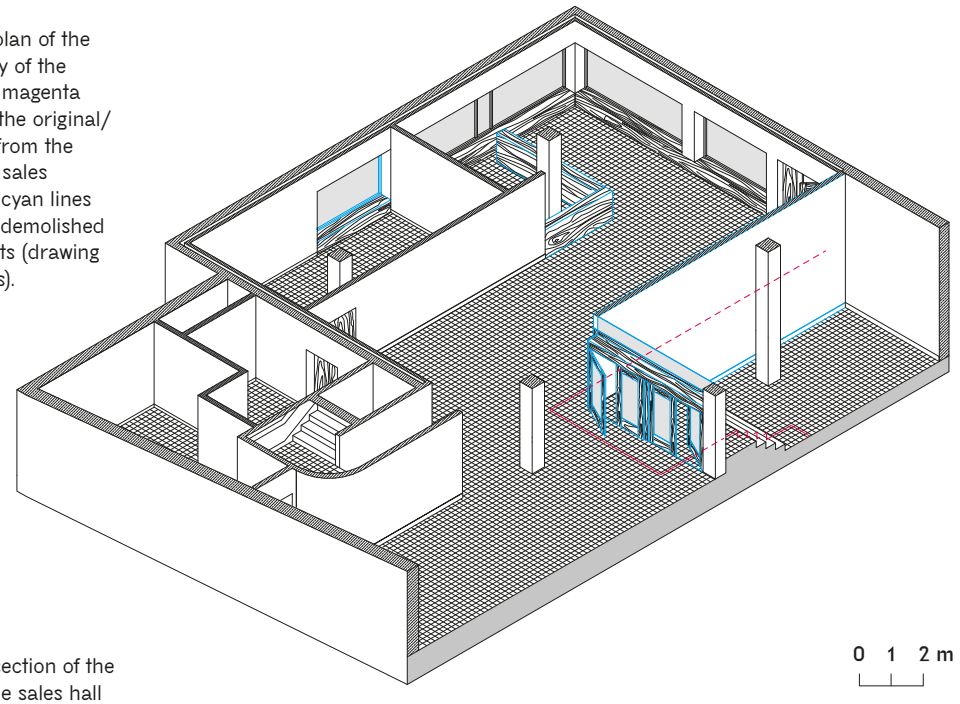


Fig. 1.12
Axonometric section of the entrance to the sales hall and detail of materials' rendering – the magenta line indicates the original/ indirect path from the outside to the sales area, and the cyan lines represent the demolished or altered parts (drawing by Diogo Araujo).

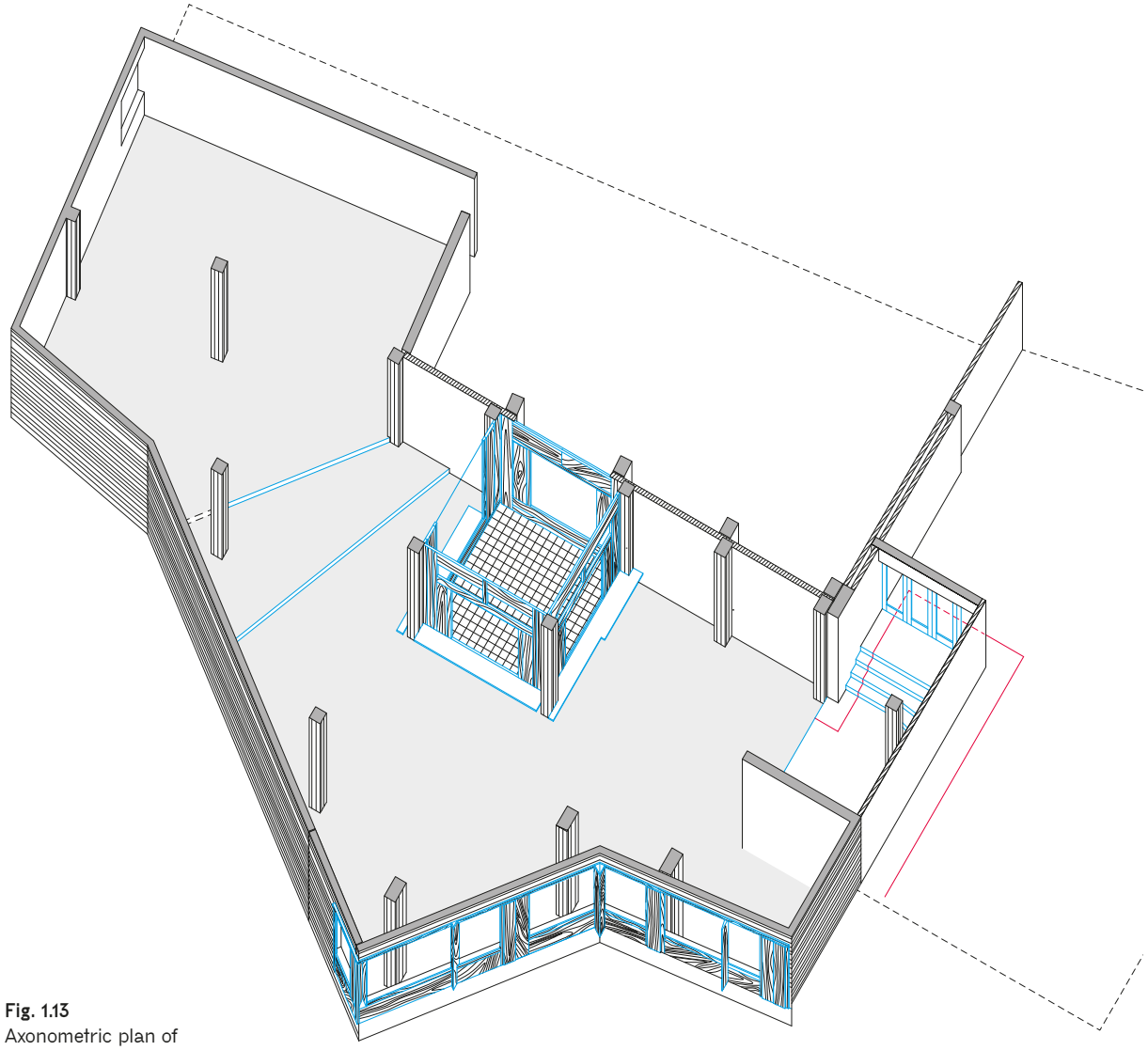


Fig. 1.13
Axonometric plan of the sales hall with the inside courtyard, which also enabled a visual connection between that area and the adjacent storage room – the magenta line indicates the original/ indirect path from the outside to the sales area and the cyan lines represent the demolished or altered parts (drawing by Álvaro Mendes).

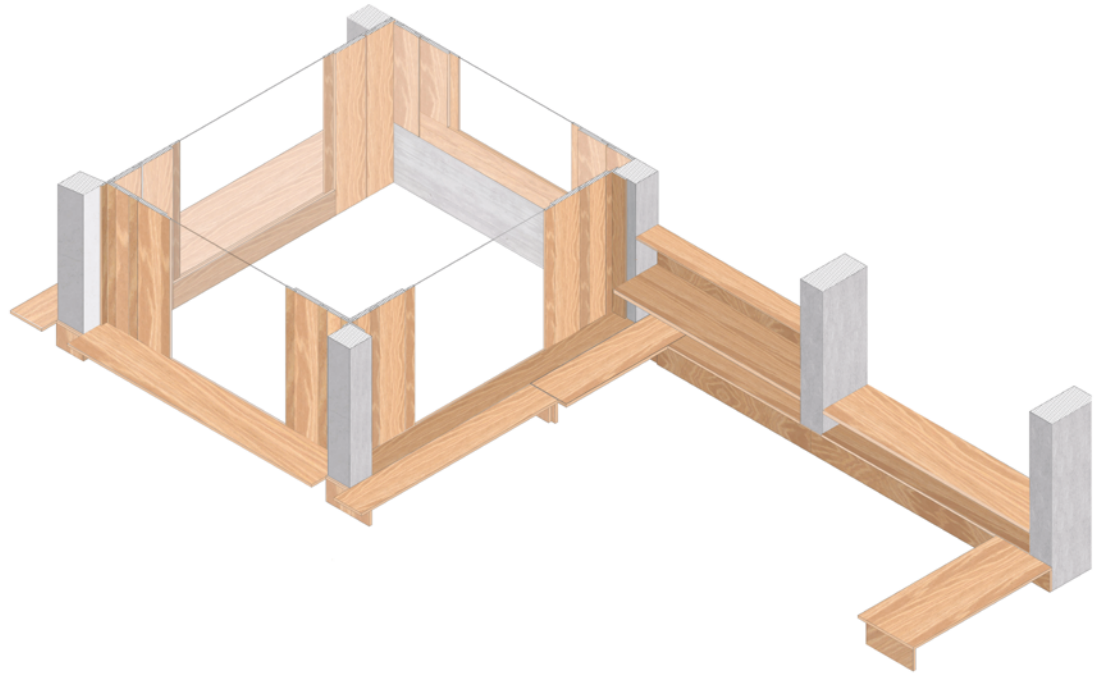


Fig. 1.14
Axonometric reconstruction with details of the materials used on the wooden framework in the glazed inner courtyard and associated fixed furniture (drawing by Silvy Dias).

Fig. 1.15
Axonometric section transversal to the storage room and the assembly hall placed above, which are endowed with a ventilation shaft allowing for cross air circulation on both levels. – the cyan lines represent the demolished or altered parts (drawing by Silvy Dias).

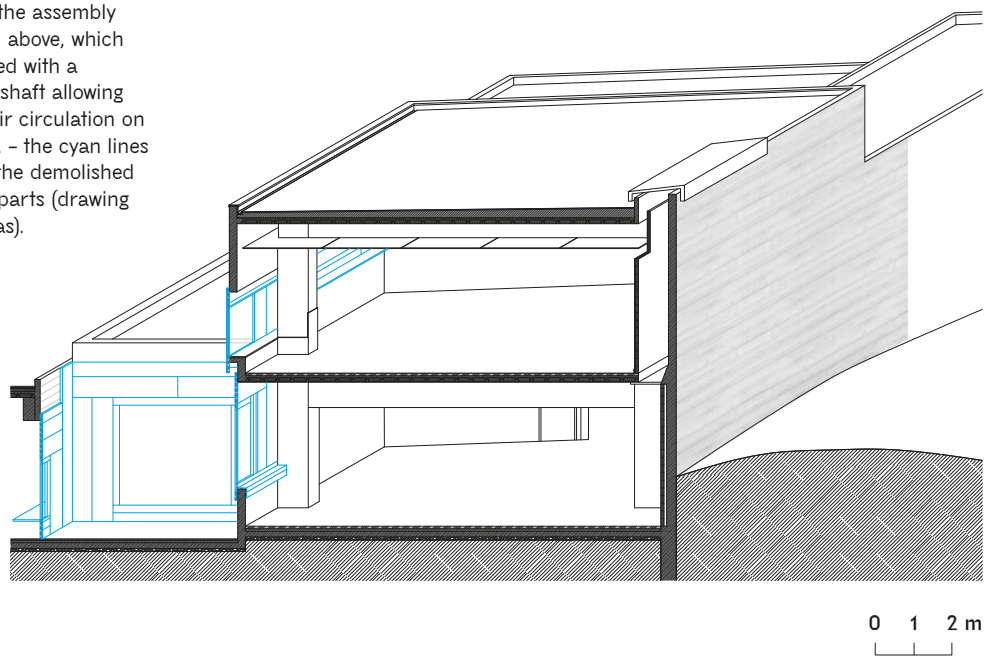


Fig. 1.16 a/b/c
Views of the storage room's northern wall, on top of which one can see the horizontal opening of the ventilation shaft (photos by the author 2017–19).

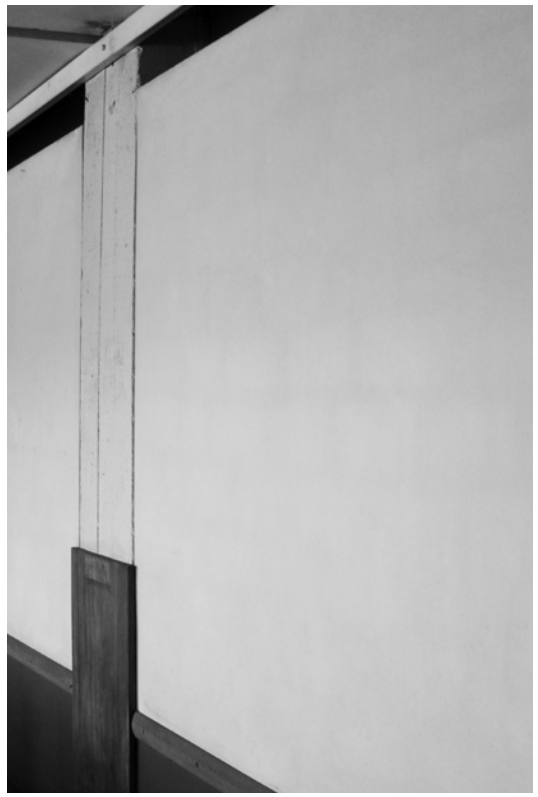


Fig. 1.17
View of a portion of the assembly hall's northern wall, on top of which one can see the vertical opening of the ventilation shaft (photo by the author 2017–19).

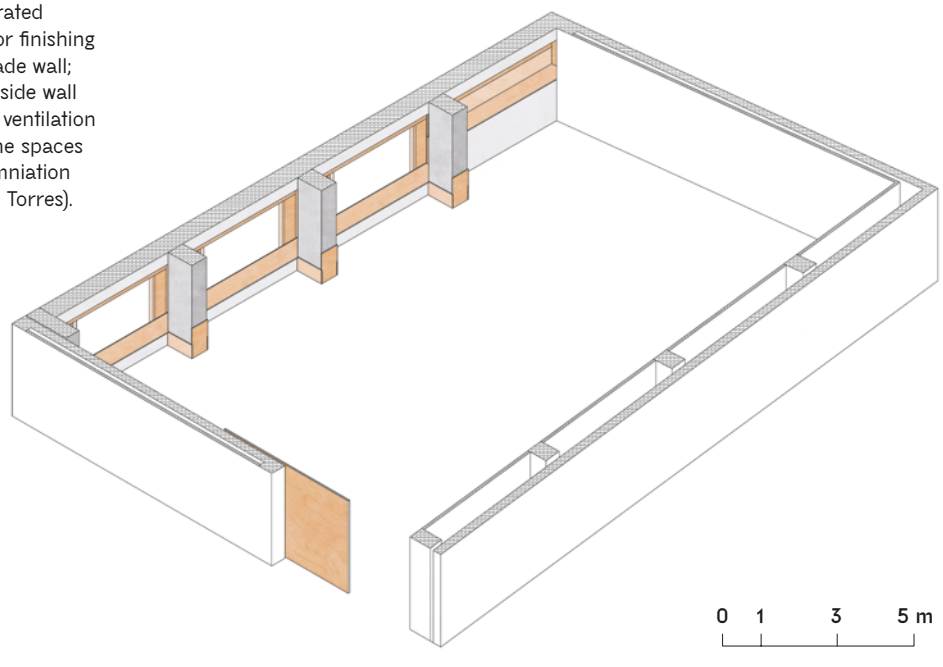


Fig. 1.18
Axonometric plan of the assembly hall with details of the materials used on the wooden framework which was integrated within the interior finishing of the same façade wall; on the opposite side wall one can see the ventilation shaft crossing the spaces of the intercolumniation (drawing by Inês Torres).

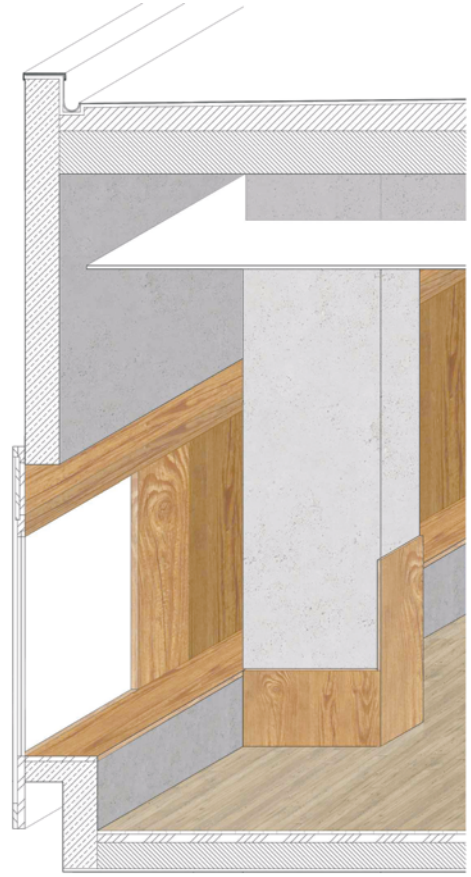


Fig. 1.19
Axonometric reconstruction with details of the materials used on the wooden framework of the assembly hall's façade wall as observed from the inside (drawing by Silvy Dias).

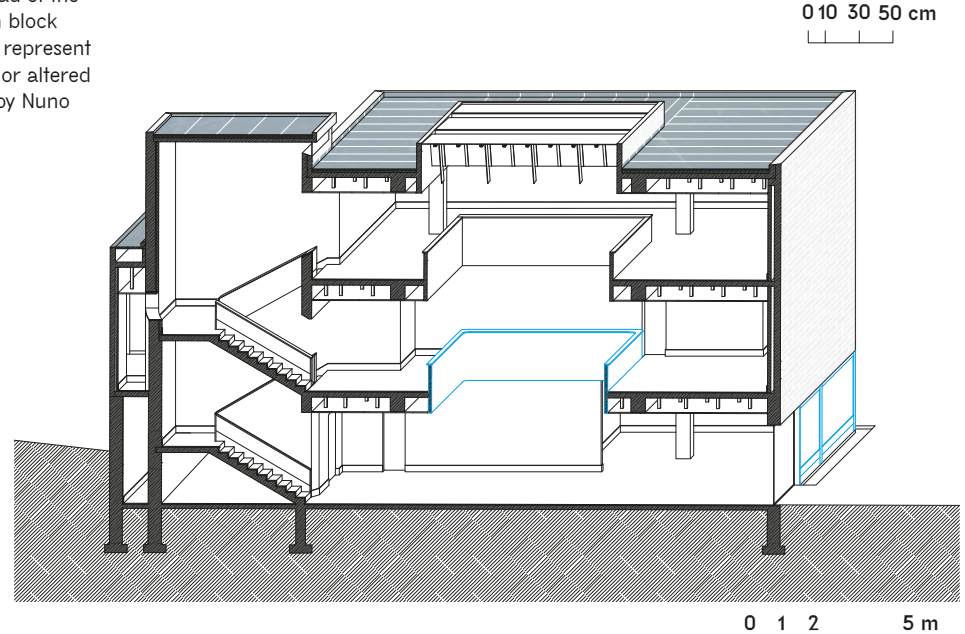


Fig. 1.20
North-south axonometric section, spanning from the entrance door to the stairway bulkhead of the three-story high block – the cyan lines represent the demolished or altered parts (drawing by Nuno Gonçalves).

Fig. 1.21
Historical view (1960–63) of the stairway bulkhead, at the top level (Álvaro Siza © Archive Serralves Foundation).

Fig. 1.22
Detail of the intradoses of the staircase ramps (photo by the author 2017–19).

Fig. 1.23
Detail of the staircase landing on the first floor (photo by the author 2017–19).

Fig. 1.24
View of one of the altered restrooms on the first floor (photo by the author 2017–19).

Fig. 1.25
The entrance to the library room on the second floor (photo by the author 2017–19).

Fig. 1.26
Outside view of one of the library rooms on the second floor (photo by the author 2017–19).

Note regarding Figures 1.23 and 1.26: opacified white parts correspond to the altered ones, flooring materials shown in those images are also not the originals.

1.3 An empirically mixed building system

The choice of reinforced concrete, as almost sole building material for the Lordelo Cooperative, was, at that time, also motivated by Álvaro Siza's aspiration to discover and experiment its properties. In the early 1960s, reinforced concrete was not yet commonly used in Portugal, and since there was no customary practice established by the builders, it constituted a theme of experimentation for Modern architects.

As we discussed in a prior essay,[29] the need to develop appropriate forms of construction has been a constant concern throughout Álvaro Siza's design career. In fact, while teaching precisely this subject (*Construção*), from 1976 to 1980 at the Porto School of Architecture, his approach was to get students to elaborate several different construction options just for one small project.[30] His designs are mostly realized in his own particular manner and characterized by the use of both loadbearing and enveloping structures, that is to say his designs have an identity based on the spatial and formal qualities inherent in masonry structures and that are well-suited to the empiric arrangement of the plans. Despite being one of his early works, the Lordelo do Ouro Cooperative Building is no exception to this conception; as a matter of fact, the vast rough concrete surface that defines the built volumes is so heavy that it necessarily appears to be loadbearing. Anyway, upon entering the Building we may observe that those external walls are integrated with an equally substantial grid of pillars. In more detail, when it comes to the square tower block, pillars are placed along the recessed perimeter that outlines the three-story high space. The storage room and the assembly room above are supported by a series of five structural bays, each one composed by concrete pillars loadbearing a huge beam spanning the full length of the transversal dimension of the room; on the north side the pillars are juxtaposed to a concrete wall set against the outer embankment. Notably it is by the interplay between this wall and the line of pillars that the natural ventilation shaft is organized.

Then the sales hall placed around the storage core is provided with its own system, in this case composed by a similar series of structural bays, whose spanning is variable according to the articulated geometry of the room. Due to the structural independence of the Building parts and their own specific articulation, another row of pillars was added in slightly shifted position along the side adjacent to the storage room; and from this row originated the autonomously articulated warp of structural bays of the sales hall. A separate warp of structural bays, which also has a different orientation, structures the space in the west side of the Building. Finally, along the polygonal line of the south elevation of this same hall, we find a concrete bearing wall which, in addition

29. V. Riso, "*Building methods in the architecture of Alvaro Siza*", in *ARQ (Architectural Research Quarterly of Cambridge University) linking practice to research*, vol. 4, n. 3, 2000, pp. 265–280.

30. *"Dans l'enseignement de la construction tel que je le conçois l'objectif, est de proposer des voises des mécanismes de fonctionnement de plus en plus développées. L'ors que j'ai une idée, celle-ci doit contenir toutes les alternatives de sa réalisation. Une idée ne doit pas être abstraite, elle doit avoir un sol, des murs, des ouvertures. Je ne me préoccupe pas d'enseigner toutes les techniques afin que les étudiants développent leurs connaissances. Je me préoccupe, par contre, de développer se processus de réflexion autour d'une idée et de ses images, de sa concrétisation, de la capacité d'imaginer des matériaux. Le rapport du dialogue et de la critique entre une image vague et abstraite et sa concrétisation permet de développer un dessin"*, A. Siza (1980), "Interview" in *l'Architecture d'Aujourd'hui*, n. 211, 10/80, p.1.

to the above mentioned structural bays' warp, is acting as the façade's own support line, even though its continuity is interrupted by the close succession of wide openings.

In practice, some parts of the concrete loadbearing walls and some concrete skeleton elements have been empirically combined, according to a variable articulation, which corresponds to the different specific issues of the various parts of the Building. Furthermore, the different pillars and beams are specifically dimensioned according to their static role and position. Among the architect's original drawings in the archives, we even find a plan,[31] in which each single matching situation between the concrete structural bays and the concrete loadbearing wall of the south façade is identified (in terms of analysis, whether and how the bays could be resting on the wall), and solved with a correspondent construction detail.

The groups of different structural warps described above are managed by a very careful design of the structural joints that necessarily involve the concrete walls, and, as we can observe, results in a number of episodes (those structural + expansion joints) that punctually reveal how the Building is constructed, therefore defining its whole tectonic. In other words, those structural joints could be thought as three-dimensional wood joinery (yet at the scale of a whole building) which, according to the Building composition, occur in selected positions; so they are definitely different from those customary structural joints whose position is determined on reasons of the physics of the construction, as if plane cuts were scars wanting to be masked **[Figs. 1.27 to 1.32]**.

Inside there was a line of brick plastered masonry (10 cm thick) beside the (20 cm thick) structural concrete walls, while the pillars remained exposed in their rough concrete surface. Plasterboard ceilings were applied in every part of the Building, with exception of the storage room, where the visible concrete beams emerged from the hollow floor slabs' plastered surface. It is worth noticing that the gypsum boards of the false ceiling were handcrafted by adopting the traditional technology of encasing a gypsum paste in wood wool (*tectos falsos de estafe* in Portuguese), to produce the composing units that consisted in a regular panel measuring 1 by 2 meters with a thickness of about 7 cm. Particular care was taken in the assemblage of those elements, with varying heights and a precise expression intended for the articulation of the different spaces, and also out of respect for the tectonics.

In fact, the gypsum units were sealed among them, but their consequent continuous plan was left unsealed onto the perimeter walls of the rooms, recessed in 2 centimetres. And also, along the extension of the beams a 10 cm wide separation split marked the continuity of the false ceiling, so as to reveal at the same time the presence of that structural element and the material depth of the false ceiling.

31. Drawing catalog number PT-FS-ASV-08-3-7-0006.

Along the years, due to neglected rainwater infiltration from the roof, a portion of the sales hall ceiling got soaked and fell down; then the whole extension of the false ceiling was secured by a steel framework, and even after the roof was repaired, that additional support was left behind (and can still be seen *in situ*) **[Figs. 1.32 to 1.39]**.

Concerning the interior finishing, it is worth observing that when it comes to the intersections among the various structural components (exposed concrete pillars, beams, slabs and walls), and their interplay with non-structural walls, an additional role is played by wood (*Prioria balsamifera* that came from Angola under the Portuguese name of *Tola*) coating elements (strips and boards). Anyway, this is again an empirical (i.e. not rigid, rather point by point adjusted) formula. In fact, on occasion spatial perception may take relevance and affirm itself as a unifying principle. Like, for instance, in the case of the expansion joint which appears to be absorbed into the staircase in the continuity of a plastered wall, and therefore designed as some kind of thin furrow contour along the adjoining lines of the different structural bulks (such a line is visible on the left, **Fig. 1.44**). That is to say that in this specific part we have a concrete beam that is supporting an insulation masonry brick wall; so they are visually united by the gypsum plastering, while the joint line described above makes the presence of the structural element manifest, and manages the cracking line necessarily originated from the different expansion behavior of the concrete beam versus the brick masonry **[Figs. 1.40 to 1.47]**.

Fig. 1.27
Ground level plan with complete reconstruction of the original design layout and its structural organization (drawing by Diogo Araujo).

Fig. 1.28
Structural plan at ground level with specification of beam dimensions and indication of the orientation of the floor slab framework (drawing by Lucía Laín Mateu).

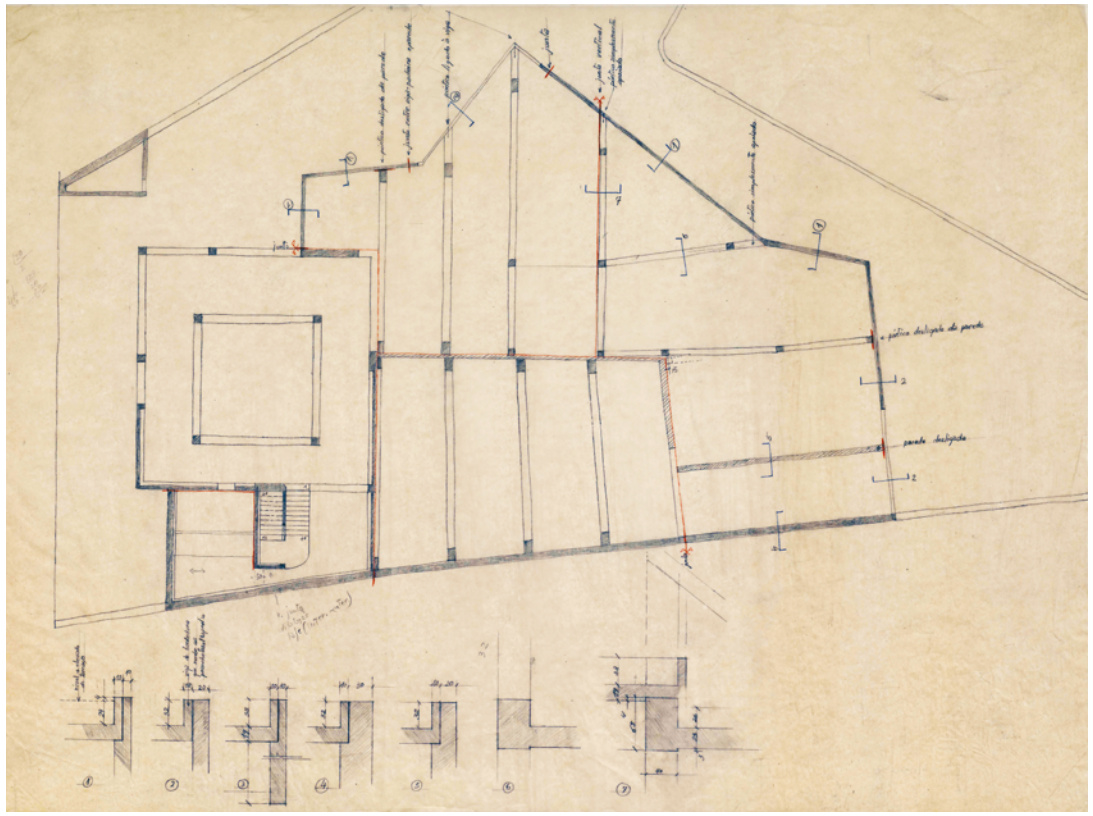


Fig. 1.29
Álvaro Siza's original drawing (1960–63) of the structural plan at ground level with specification of beams' matching with the concrete loadbearing wall of the south and the west side façade; close to each one of these occurrences there is handwritten information about whether the beam is resting or not on the wall, structural/ expansion joints along the wall are also annotated, and a correspondent detailed solution of construction is provided at the bottom of the sheet. Highlighted with red pencil contour the different structural parts are singled out (Álvaro Siza Archive © Serralves Foundation).

Fig. 1.30
Historical photo (1960–63), in which it is evident how the arrangement of the expansion joints corresponded to a logic of assemblage of different structural parts that have been united by an overall composition and by the continuity of their materiality (Álvaro Siza Archive © Serralves Foundation).

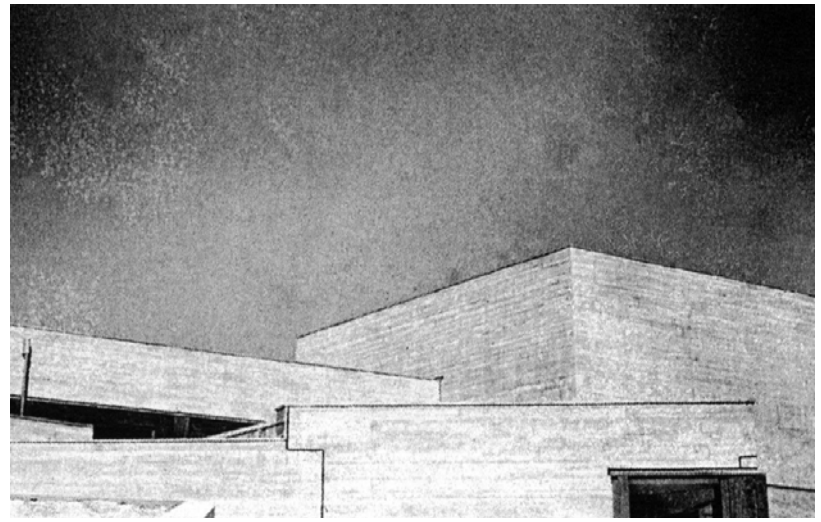


Fig. 1.31 and Fig. 1.32
Present day condition, in detail, of the two joints portrayed in Fig. 1.30 (photos by the author 2017–19).

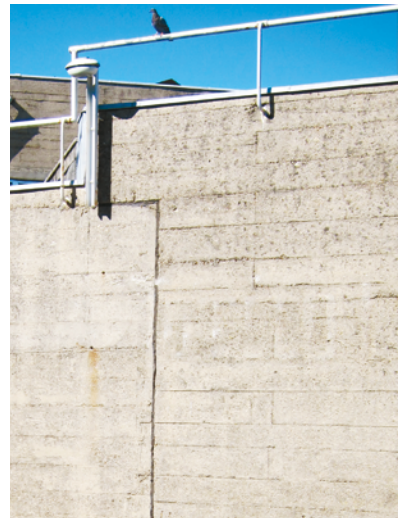


Fig. 1.33
Analysis of the layout of the false ceiling (top) and analysis of the different floor levels (down) within the original ground plan (drawing by Lucía Laín Mateu).

Fig. 1.34
Axonometric reconstruction of the layout of the sales hall false ceiling – within the original ground plan (drawing by Inês Tavares).

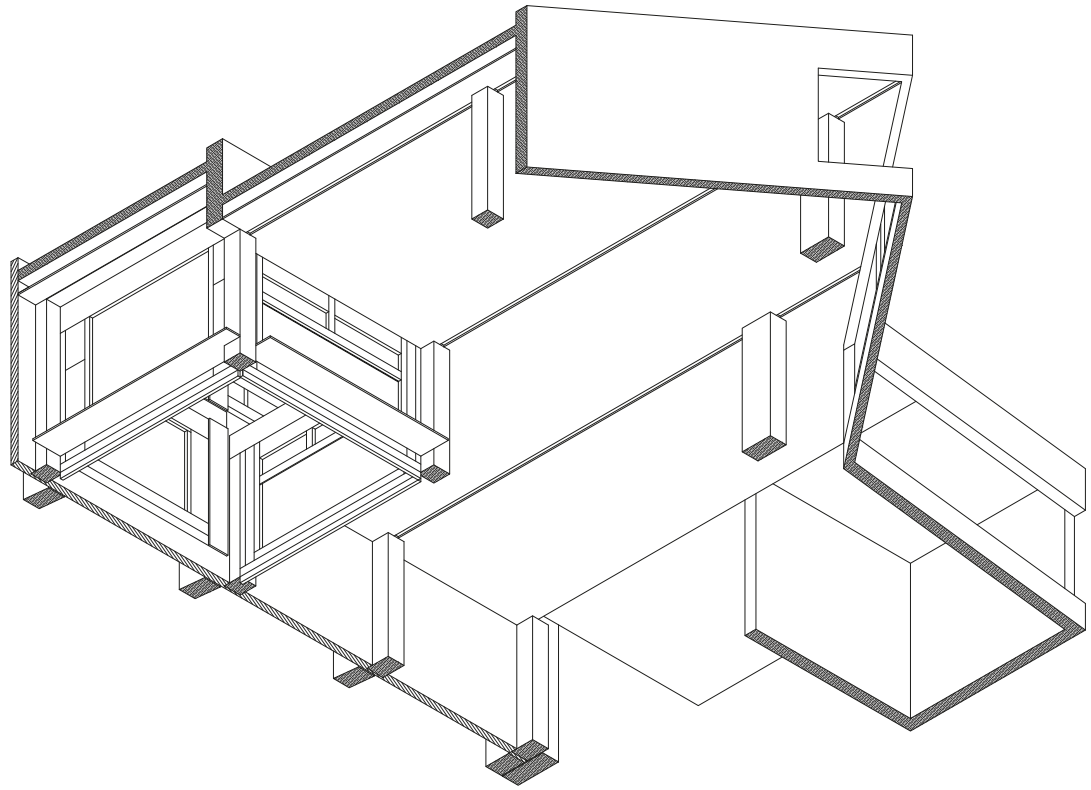


Fig. 1.35
Detail view of a remaining segment of the splits that originally patterned the false ceilings along the extension of the concrete beams; the support brackets also visible are part of the later added support framework (photo by the author 2017–19).

Fig. 1.36
Detail view of the open joint between the false ceilings and the walls; the steel profile element, also visible, is part of the later added support framework (photo by the author 2017–19).

Fig. 1.37
Inside view of the assembly hall, in which the splits that originally patterned the false ceilings along the extension of the concrete beams can still be seen; the steel profile elements, also visible, are part of the later added support framework (photo by the author 2017–19).

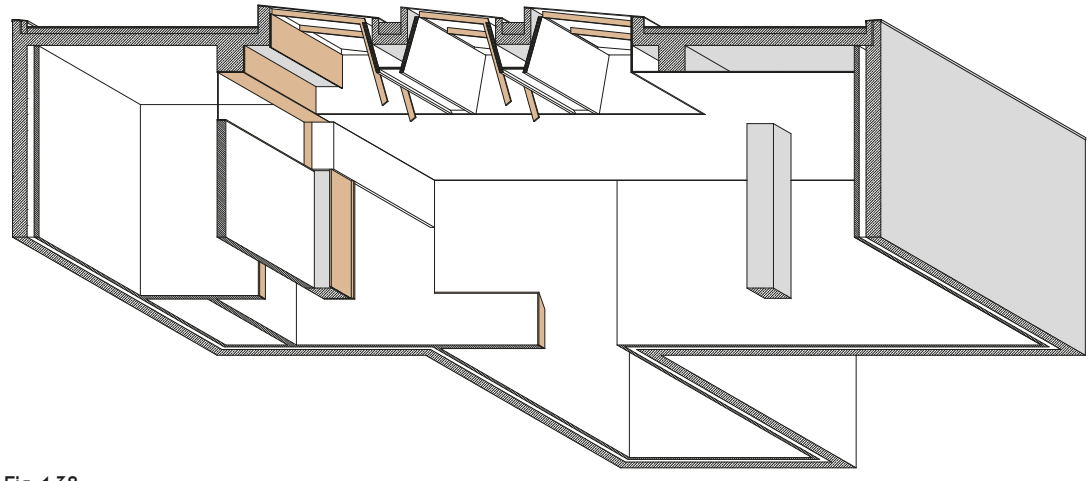


Fig. 1.38
Axonometric reconstruction of the ceiling's layout at the upper level of the square block (drawing by Inês de Castro).

Fig. 1.39
View of the skylight that originally illuminated – from above down to the entrance lobby – all of the three floors of the square block (photo by the author 2017–19).

Fig. 1.40
View of an intersection among a partition wall, a pillar and the façade's structural wall, which are joined together by the material continuity of a sequence of coating wooden strips and boards. The layout of the false ceiling, which was originally meant to appear as a floating and hanging surface, is also observable (photo by the author 2017–19).

Fig. 1.41
View of the wood and plaster finishing of the pillar – which is opposite to the pillar shown in Fig. 1.40 – placed at the entrance of the assembly hall (photo by the author 2017–19).

Fig. 1.42
View of the wood finishing at the point where a pillar and the partition wall intersect, which encloses the library placed at the tower block's second floor. Note that – as explained along the text – the lattice structure appears in the ceiling due to a subsequent alteration (photo by the author 2017–19).

Fig. 1.43
Detail view of the wood finishing of the pillar – which is opposite to the pillar shown in Fig. 1.42 (photo by the author 2017–19).

Fig. 1.44
View of the wood finishing along the inside of the staircase between the first and second floors (photo by the author 2017–19).

Fig. 1.45
Detail of a portion of the finishing portrayed in Fig. 1.44 (photo by the author 2017–19).

Fig. 1.46
View of the stair landing between the first and second floors (photo by the author 2017-19).

Fig. 1.47
Historical photo (1960-63) of the same stair landing between the first and second floors, where it is evident that the flooring has been altered too (Álvaro Siza Archive © Serralves Foundation).

Note regarding Figures 1.40 to 1.46: opacified white parts correspond to the altered ones, flooring materials shown in those images are also not the originals.

1.4 Openings

> "In the Lordelo do Ouro Cooperative one continuous ribbon of hardwood windows folds around the faceted concrete base, defining the external space somewhere between working yard and civic space. It then leads inside guiding a public route through the building".[32]

> "The ribbon of windows which defines the façade is a masterclass in free plastic layering of architectural elements. The apparently simple surface is in fact highly layered. Solid timber sections, fixed glazing opening vents include the shifting geometry of the plan. Projecting triangular ribs to accommodate rainwater pipes are matched by oblique recesses which create sharp shadows that continue within the interior geometry". [33]

Those words by Tom Emerson, excerpted from the recently published booklet "Conversation with the Álvaro Siza Archive, vol. 1", single out sharply the conception of the windows' apparatus; they were notably written upon the specific study Tom Emerson led on the huge amount of technical drawings that Álvaro Siza himself produced to design the carpentry of the Lordelo Building and some other early works of his.[34]

Our re-drawing efforts, regarding Lordelo Building in general, and particularly its original window framings, aimed at understanding, in practical terms, its construction, its functioning, and somehow visualizing its overall value, which got completely lost throughout the years.

So, the axonometric views here presented, far from a result of exhaustive study, are to be taken as evidence of our Studio's internal working process aimed to synthetize and somehow manage the available information. Anyway, as a result of our analysis, we ought to complement those mentioned observations by adding that, due to the need to protect the timber against water absorption, particular attention has been paid to the detailing of the frames regarding its connection to the concrete wall **[Figs. 1.48 to 1.56]**.

32. Tom Emerson, "Openings" in Carles Muro (Ed.), *Conversation with the Álvaro Siza Archive* – vol. 1, The Serralves Foundation, Porto, 2019, p. 18.

33. ibidem, p. 42.

34. Emerson views Siza's drawings as a whole phenomenon: "A great deal has already been said about the artfulness of Siza's sketches and his poetic imagination. They confirm his humanity as well as his politic and social engagement. If we cannot experience all his buildings directly, we can understand his architecture from the thousands of sketches which flows incessantly from his pen. In the foreground a foot or left hand holding a cigarette situates him within the scene. Occasionally an angel flies overhead. For speed or for emphasis, a line arcs over the space populated with human action in direct encounter with architectural reflection and search. That hand that draws so lyrically is the same as the one that made the working drawings. In Siza's drawings, the full-scale detail and the landscape in which he is working are never far apart. They both explore the whole and the fragment and contain the memory of conversations (with carpenters, clients, residents).

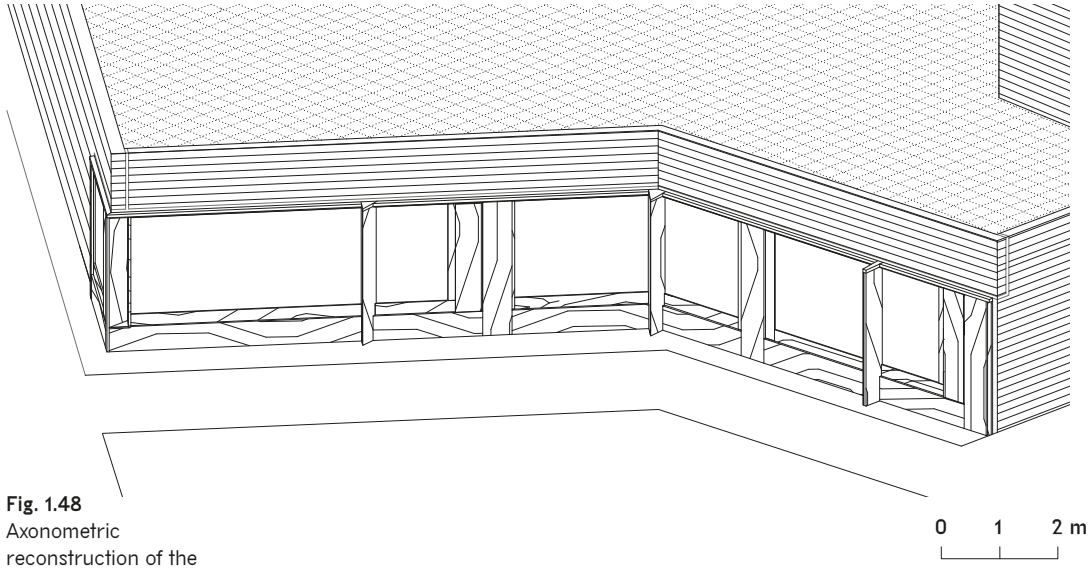


Fig. 1.48
Axonometric reconstruction of the original hardwood ribbon windows at the base of the southern elevation, i.e. the outward opening of the sales hall (drawing by Lucía Laín Mateu).

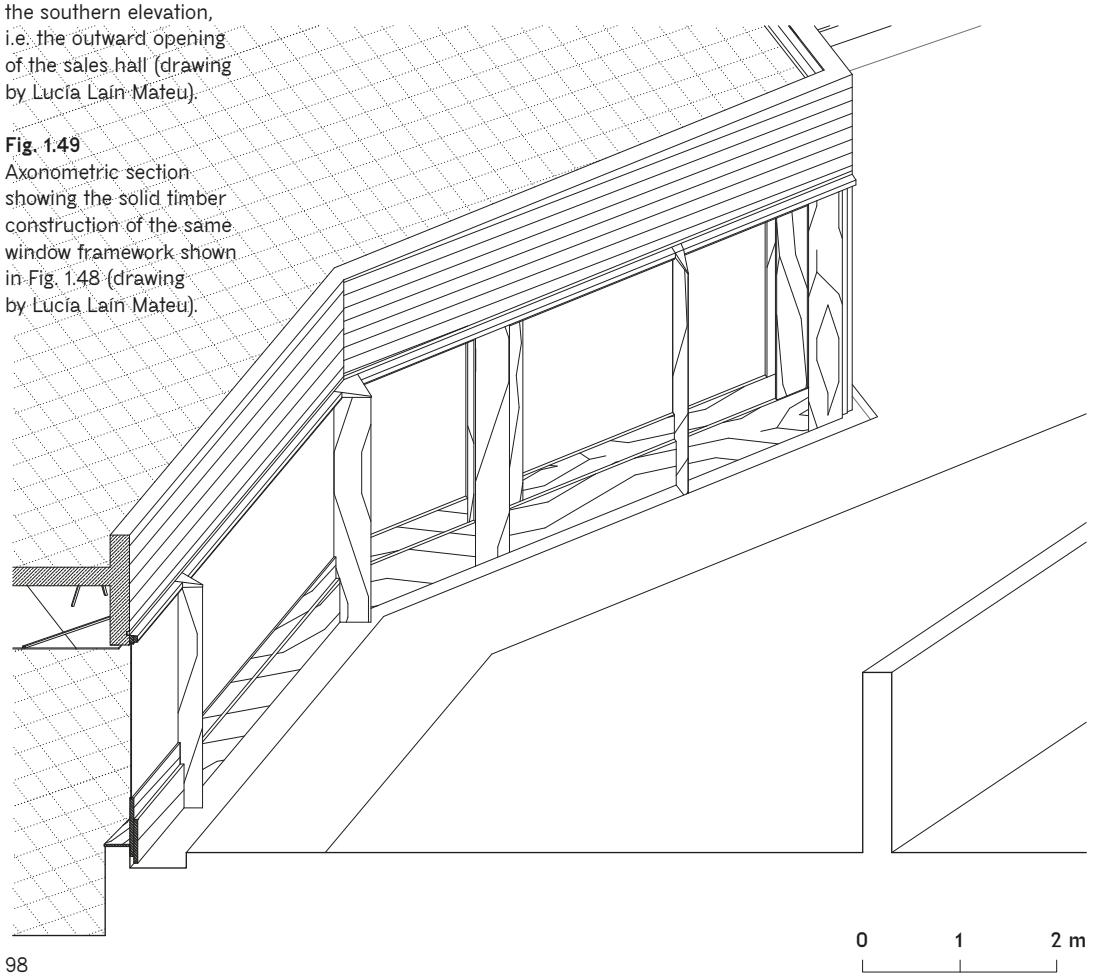


Fig. 1.49
Axonometric section showing the solid timber construction of the same window framework shown in Fig. 1.48 (drawing by Lucía Laín Mateu).

Fig. 1.50
Axonometric construction detail of the corner vertical elements of the same window framework (drawing by Lucía Laín Mateu).

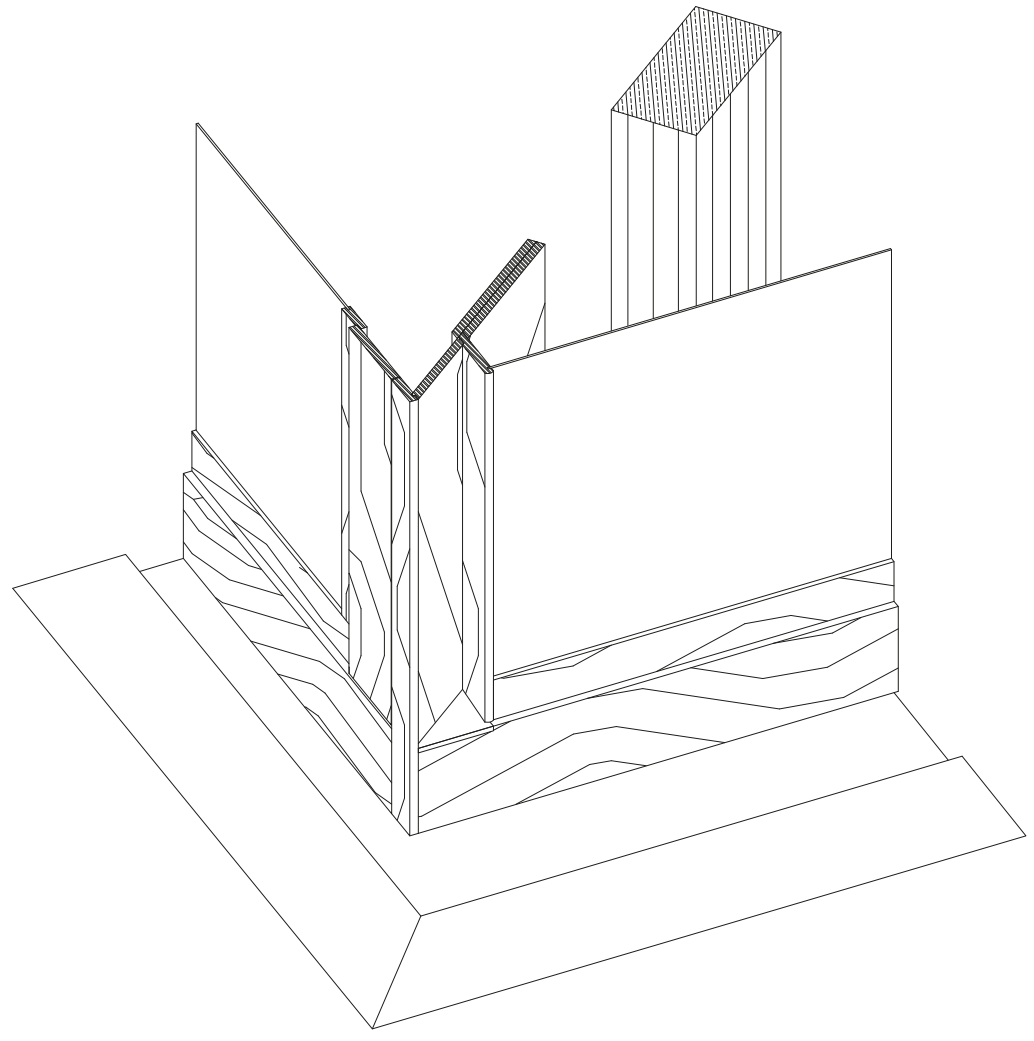


Fig. 1.51
Sequence of pictures of a mock-up (by Lucía Laín Mateu) of the construction detail of the corner vertical elements of the same window framework.

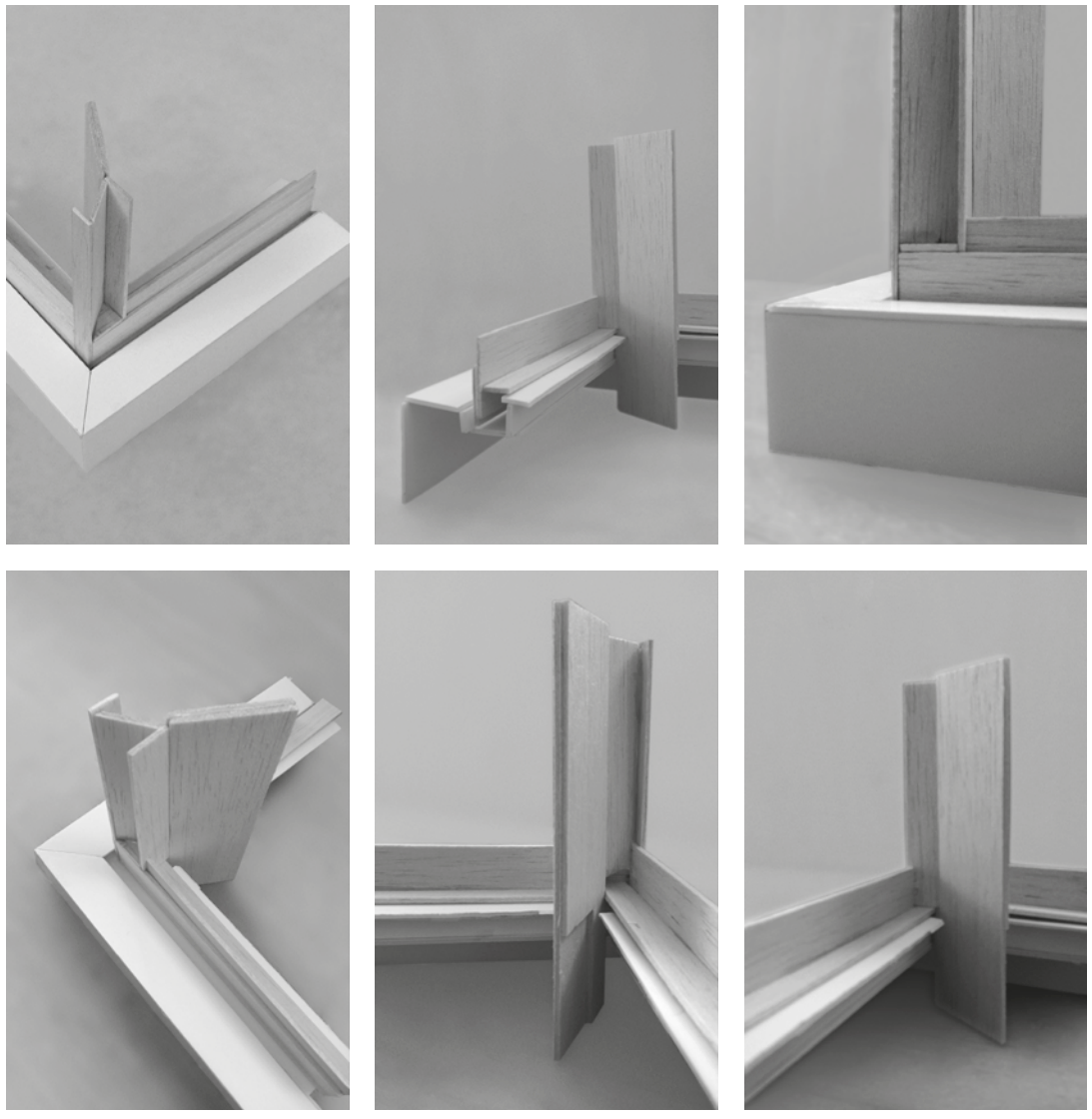


Fig. 1.52
Axonometric vertical section of the glazed inner courtyard reconstructing its original solid hardwood framework between the sales hall and the storage room – the cyan lines represent the demolished or altered parts (drawing by Simão Lima).

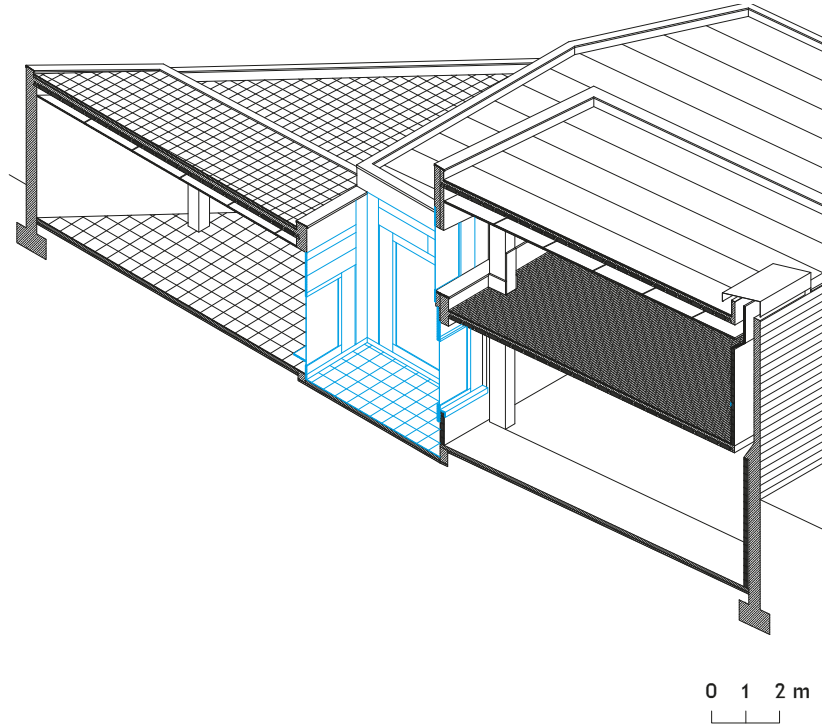


Fig. 1.53
Axonometric horizontal section of the glazed inner courtyard of the sales hall, with reconstruction of the associated and continuous fixed furniture – the cyan lines represent the demolished or altered parts (drawing by Silvy Dias).

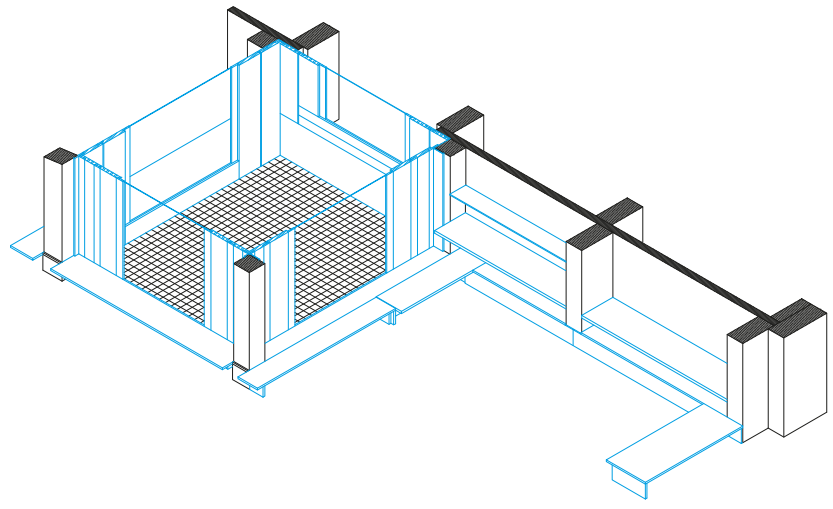
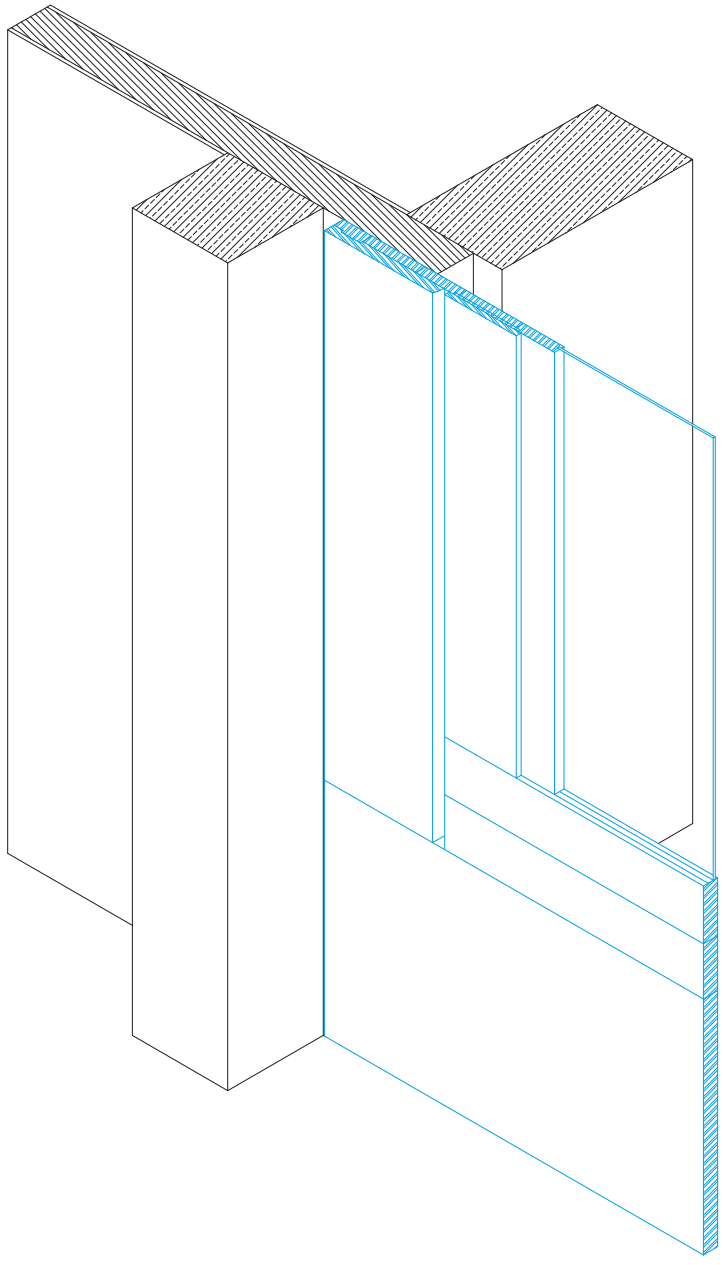


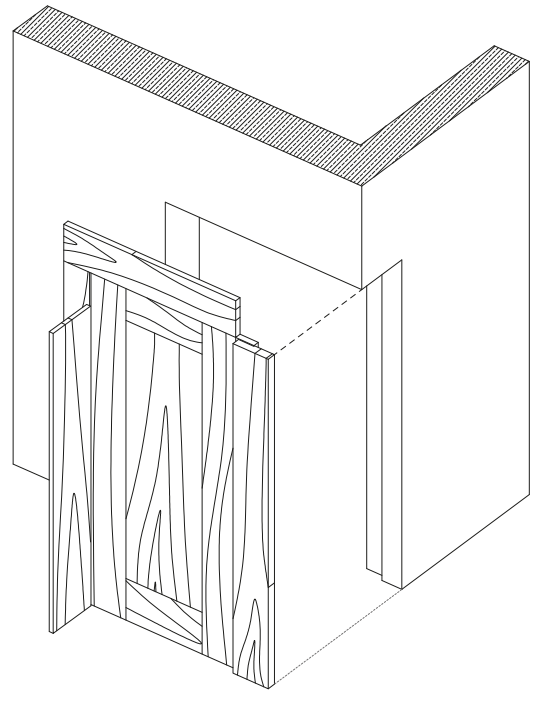
Fig. 1.54
Axonometric construction detail of the corner elements of the glazed inner courtyard of the sales hall – the cyan lines represent the demolished or altered parts (drawing by Silvy Dias).



0 20 50 cm

Fig. 1.55
Door between the sales hall and the storage room, which is among the few remaining original elements (photo by the author 2017–19).

Fig. 1.56
Axonometric disassembled view of the door shown in Fig. 1.55 (drawing by Simão Lima).



0 0,5 1 m

1.5 Furniture

The interior design based on the simple attempt to line up the shape of the elements by coordinating the transitions of materials and plans, seamlessly comprised (at the time of the completion of the Building) combination of pieces of furniture. i.e. a number of unique pieces were purposely designed, and built in 'Tola' wood, to integrate each specific room/space and role. Again, we register here the almost complete loss of what, with hindsight, would have constituted further material evidence of that Modern interpretation of craftsmanship tradition Álvaro Siza assumed as the practical starting point of his poetic career. As already explained, this is a leitmotif for understanding the entire construction of this Building, and even more so when it comes to furniture carpentry.

Through the analysis of Siza's archive documentation we can infer that furniture organization was based on four types of basic elements, namely: display shelves, storage shelves, tables/desks and benches. According to all practical needs, each one of these was designed in a number of variations, even if we are lacking a detailed record for every version **[Figs. 1.57 to 1.61]**.

Furthermore, not many drawings were left of the coordinated arrangement as a whole. Within the limits of our exercise, we were able to digitally reconstruct a few exemplary pieces, but, apart from some general hypotheses, we are still to study how the single elements were effectively arranged in the original layout of the space. Similarly to the complex system of the described hardwood frameworks, this important question requires a longer investigation **[Fig. 1.63]**.

By including the material reconstruction of some samples, we might rediscover in full the value of such an integral design concept. Besides, it is evident that those were elemental objects characterized by solid constructive knowledge, which almost anonymously achieved an esthetical quality in their authentic simplicity. Nevertheless, we could still recognize the author's subtle touch in a few details; such as the low round table divided in half which somehow seemed to have 'absorbed' the step that articulated the sales hall floor **[Fig. 1.62]**.

Fig. 1.57
Axonometric reconstruction of a display shelving unit; 'tola' wood structure, galvanized iron boards with brass finishing (drawing by Rodrigo Camargo).

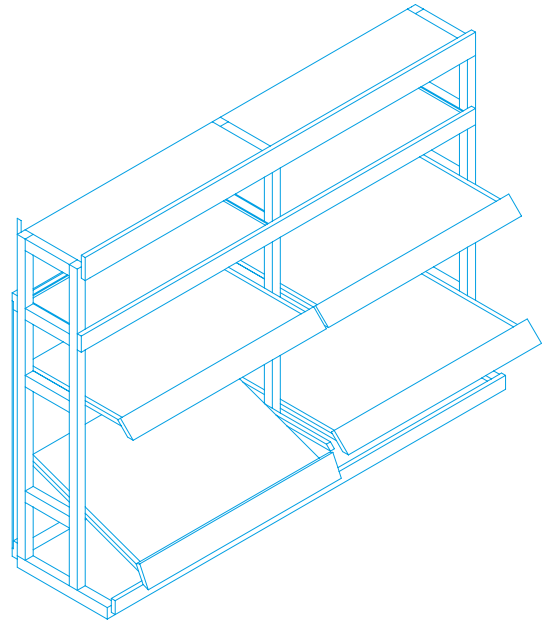


Fig. 1.58
Axonometric reconstruction of a storage shelving unit; pine wood (drawing by Rodrigo Camargo).

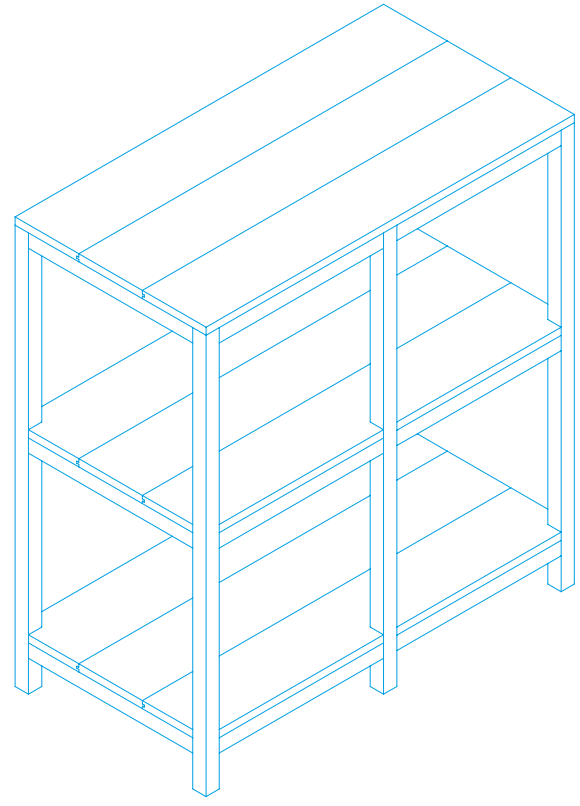


Fig. 1.59
Axonometric reconstruction of a working/storage type table; pine wood (drawing by Rodrigo Camargo).

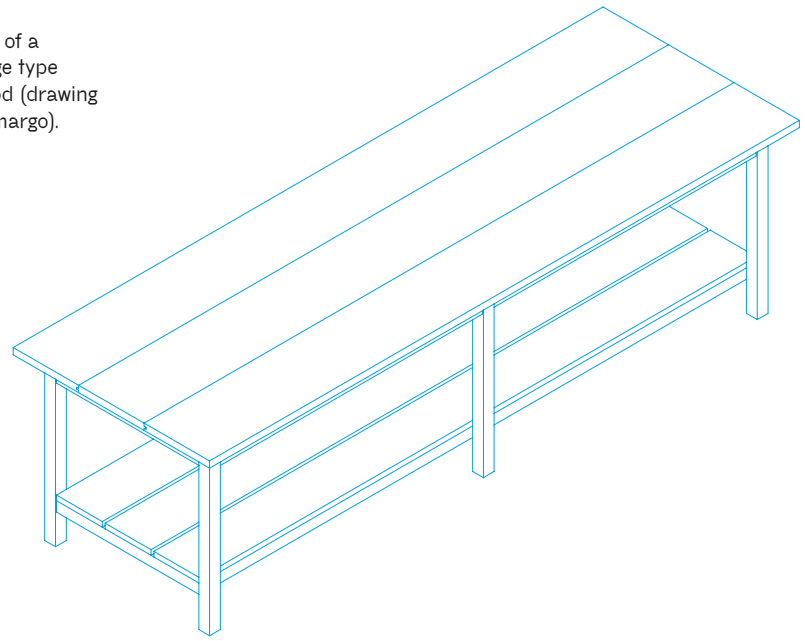


Fig. 1.60
Axonometric reconstruction of a work type table; ‘tola’ wood with crystal board (drawing by Rodrigo Camargo).

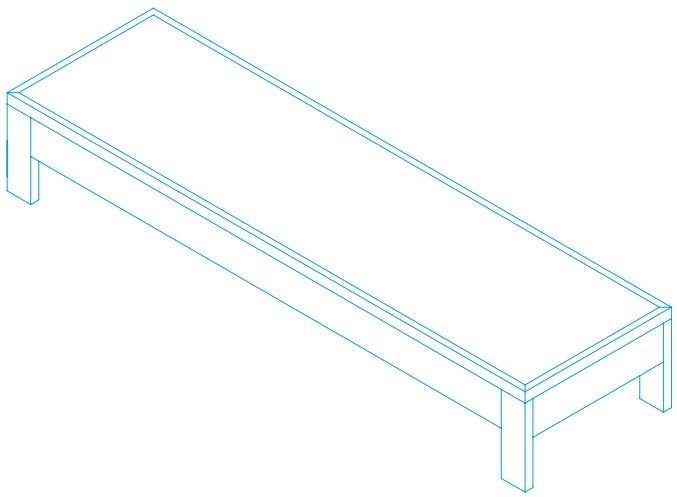


Fig. 1.61
Axonometric reconstruction of a table with casters ‘tola’ wood with crystal board (drawing by Rodrigo Camargo).

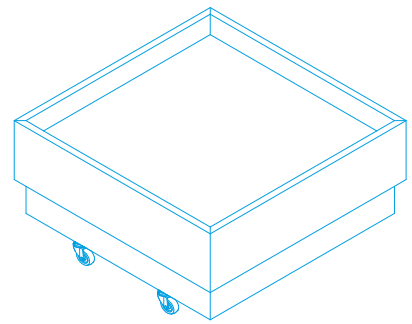
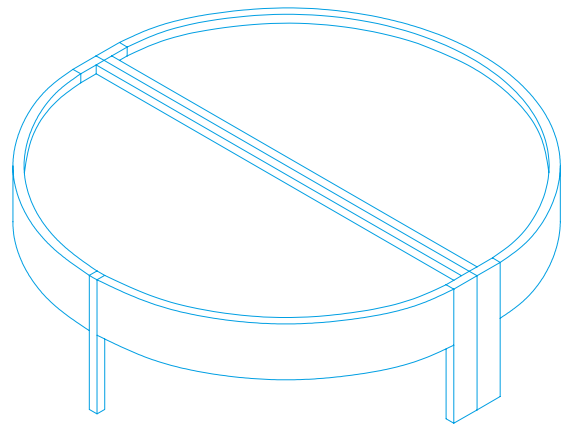
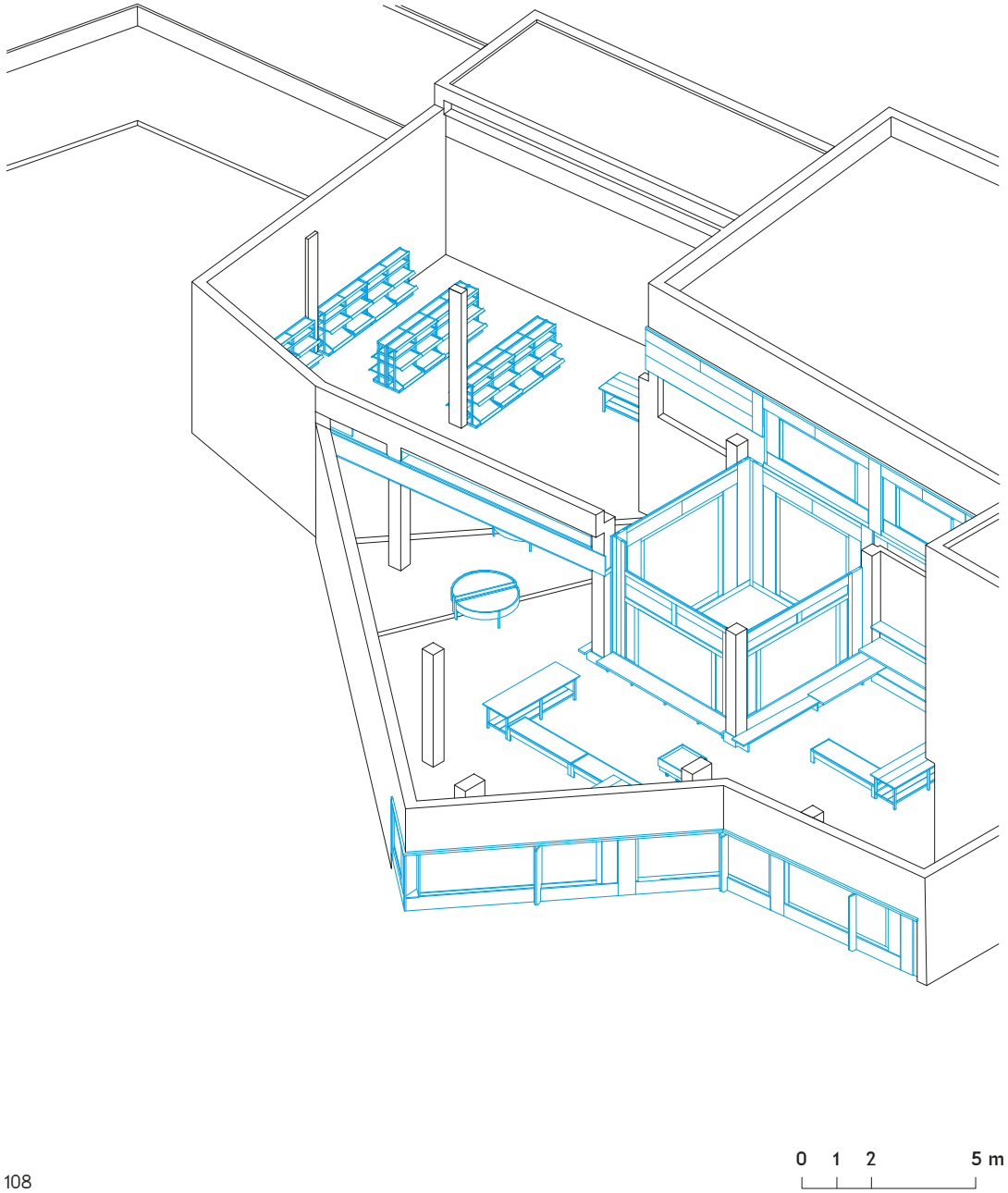


Fig. 1.62
Axonometric reconstruction of a split type round table; ‘tola’ wood (drawing by Rodrigo Camargo).



0 10 30 50 cm

Fig. 1.63
Hypothetical furniture layout within the sales hall (drawing by Rodrigo Camargo).



1.6 Construction deterioration (apart from uncontrolled alterations)

During the Lordelo do Ouro Cooperative Building's entire existence, there was not once a survey or proper maintenance performed. Therefore a detailed assessment of the material body of the construction and surfaces of the Building, as well as their present condition, is definitely in order. It should result in whole new representative drawings, ranging from the overall plan to the construction detail, which could serve as an essential basis for mapping all of the alterations and deterioration phenomena, including diagnosis on causes/factors of decay and their importance, and eventual proposals for further assessment.

Due to their crucial role, the concrete wall-structures should be object of specific analysis aimed to assess their structural firmness as well as the state of surfaces' textures.[35] Furthermore, reinforced concrete was the most used material and the one with most visible damage. In order to understand the current condition of all parts and elements and assess the characteristics of the materials used, it would be important to collect samples and prepare specimens to be tested and analyzed in laboratory. Nevertheless, a visual condition survey should always be conducted to evaluate the extent, types and patterns of distress and deterioration; and that was precisely what we were able to perform within the limited possibilities and time of our study. That is to say, we just aimed for a preliminary evaluation of the current conditions, causes and nature of distress and environmental factors. Such observation indicated that the structure is in fair general condition, without relevant fissures or cracks.

In fact, there were just a few surface deterioration phenomena. That, in addition to the original reduced thickness of the embedded reinforcing structure, might explain some spots with signs of early stage corrosion with corresponding cracks in the adjacent concrete. Furthermore, areas affected by weather have also been noted in the north exposed concrete surfaces with erosion of cement paste and the presence of some moss **[Figs. 1.64 to 1.85]**.

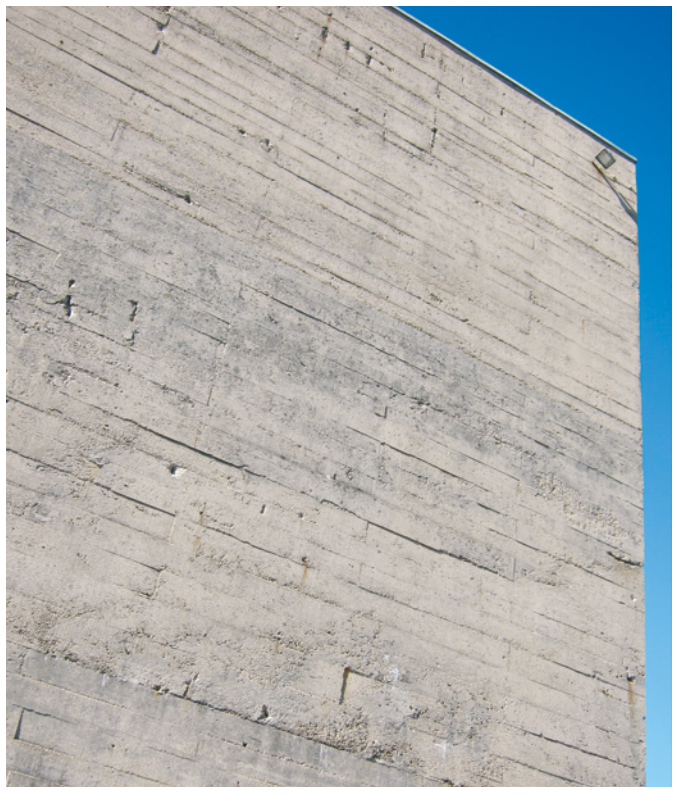
Among the causes for those problems, there is moisture penetration due to the lack of maintenance of both the roof's covering and flashing **[Figs. 1.86 and 1.85]**. As mentioned above, moisture infiltration due to diffuse roof leaking has largely damaged the false ceiling panels **[Fig. 1.89 and 1.90]**.

Finally, as regards to the interior, no grave deterioration has been observed. There were a few cracks affecting non-structural walls in the upper level of the Building's square block, which have been determined by the structural adjustments made when the triple high entrance hall was sealed at the first level with a certain increase of load **[Fig. 1.91 and 1.92]**.

35. For those who will hopefully deal with this issue in the future, it would be relevant to know that all the available documentation referring to the design and calculations about the Building's reinforced concrete structures are also kept at the General Archive of the city of Porto in files nr. 124901, 140443 and 158615).

Apart from this, an evident problem is that of brick shaped marks on the walls and at the intradoses of the roof slabs (where, obviously, the false ceiling is absent). Due to the lack of thermal insulation within the constitution of the walls, gaps of temperature occur upon the surfaces of different materials/elements; that is to say, since bricks have greater thermal resistance than the mortar that aggregates them, condensation phenomena translate into different types of behavior **[Fig. 1.93]**.

Fig. 1.64 to 1.80
Close-up views of the deterioration of exposed concrete surfaces in all the façades in a (clockwise) sequence around the Building (photos by the author 2017-19).




ENTRADA
SUPERMERCADO

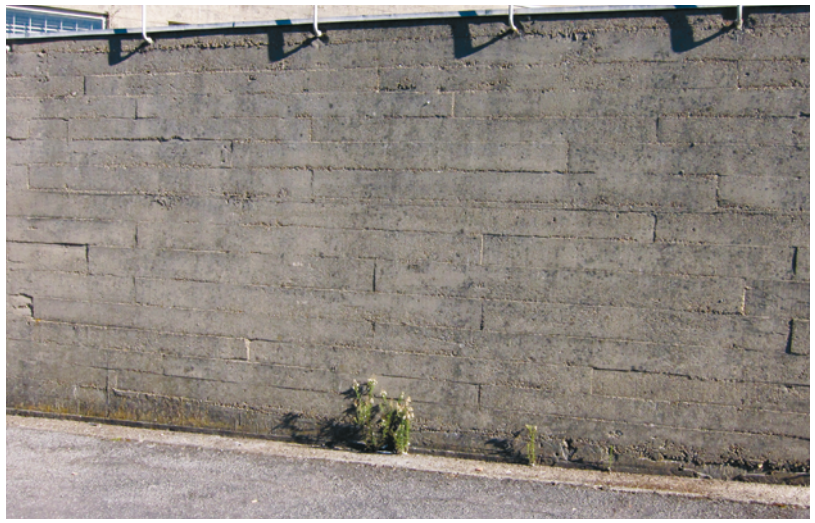


Fig. 1.81 to 1.85
Occasional spots of deterioration of exposed concrete surfaces inside the Building (photo by the author 2017-19).

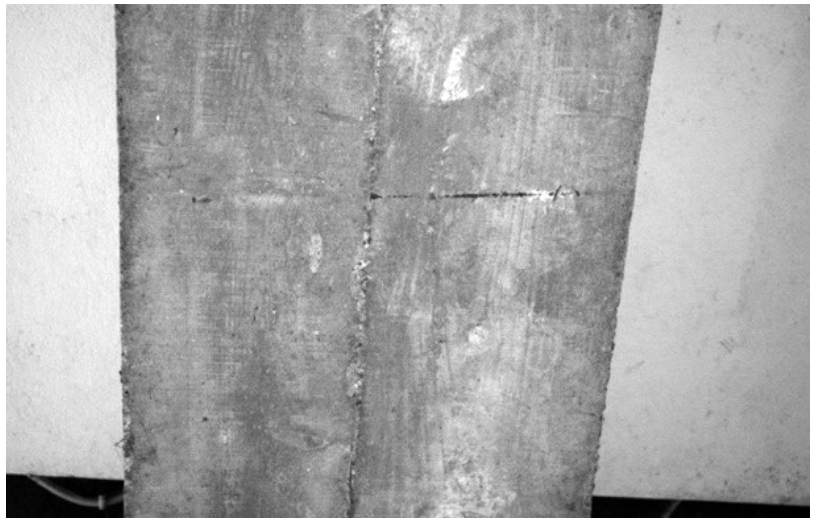


Fig. 1.86
Sales hall leaky roof covering (photo by the author 2017–19).

Fig. 1.87 and 1.88
A portion of the roof perimeter where is evident the loosening of the metal flashing, with consequent moisture infiltration inside the reinforced concrete walls (photos by the author 2017–19).

Fig. 1.89 and 1.90
Samples of the false ceiling damaged panels due to moisture (photos by the author 2017–19).

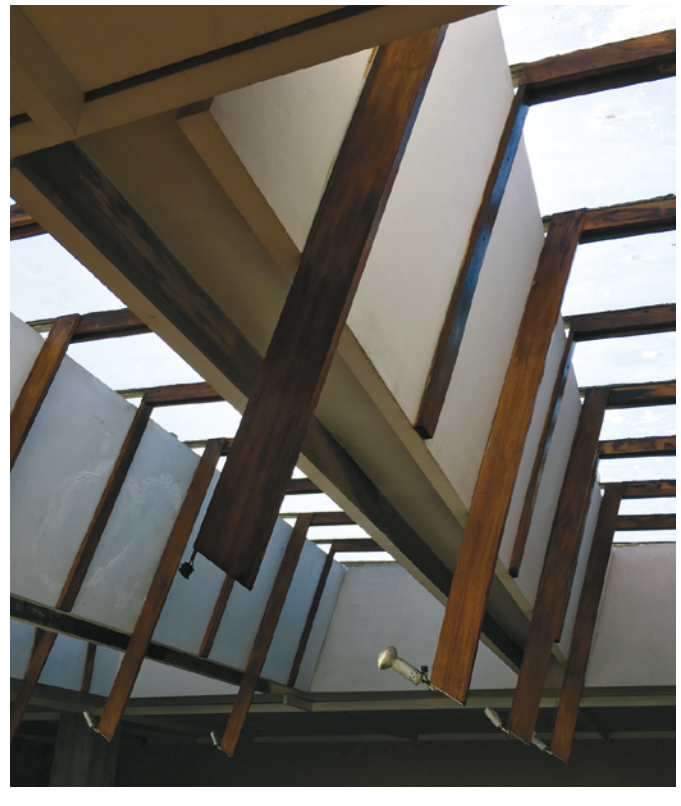


Fig. 1.91 and 1.92
Identification of cracks affecting non-structural walls (photos by the author 2017-19).

Fig. 1.93
Brick shaped marks on the walls and at the intrados of the roof slab in the staircase (photo by the author 2017-19).

2. Hypotheses for a New Social and Economic Strategy for the Cooperative

2.1 The past and future role of the Cooperative within its territory

We know that systematic researching of all the available information about the Lordelo do Ouro Cooperative's history and its territorial context should have been a consistent part of our plan of investigation. And also the identification of local actors (municipal technicians, inhabitants, merchants, schools and associations) should have been developed in parallel. But again, due to the limitations inherent to the fact that the design studio is only one semester long, we were just able to gather a minimum of the necessary information.

We heard about the history of the cooperative movement in Portugal from the chairman of CASES,[36] Eduardo Graça, and thanks to the president of the general assembly of the Lordelo Cooperative, Avelino Silva Rocha Ribeiro, we had access to a selection of papers which document all the main events.

Among other historical pictures presented in this book, and as graspable evidence of inherent ideas and facts, are the below reproduced (with a parallel translation in English) pages of a pamphlet which the Cooperative itself published on the occasion of the inauguration of the Building in 1963 (corresponding to the 66th anniversary of their institution) **[Figs. 2.1 to 2.4]**.

Nowadays the Cooperative seems to be going through some sort of managerial crisis due to the lack of generational renewal among its associates and the consequent inability to adapt to the ever rapid social and economic changes in its territorial context over the past decades. There were so many changes that the population of the Lordelo neighborhood lost not only interest in the Cooperative but even sight of its presence.

Without taking into account the history of the Cooperative and those issues currently endangering its continuation, a conventional architectural intervention would not be sufficient to change or improve the existing space. And any effective attempt to save it should necessarily be based on an action strategy to be defined with the active contribution of the population and other local stakeholders as a cultural, social and economic plan of re-development. Hence, in the beginning, even more than thinking about spaces to intervene in, we have tried to define and imagine opportunities for dialog and recognition of realities. As a consequence, even though we could not go beyond a mere outline of hypotheses, we thought about some participatory actions with the local community, initially aimed to include it once again in the history of the Cooperative.

In this perspective, a group of experts, who developed a proper methodology to deal with socio-economic issues such as ecological conversion and the refitting of social housing estates,[37] was invited

36. CASES – *Cooperativa António Sérgio para a Economia Social*/António Sérgio Cooperative for Social Economy is a public utility institution which aims to promote the strengthening of the social economy sector, by increasing the cooperation between the Portuguese State and its member organizations.

37. See D. Duarte Pereira and Fernando P. Ferreira (eds.), *Transcribe: participatory actions in Braga's social housing estates,* CM Braga, 2018.

to contribute to our Studio by coming up with a work hypothesis to be structured under a series of basic guidelines developed towards the need of dealing with the Cooperative's complexity and the history behind that space not only as a physical, symbolic and social resource, but also as a design experience for future changes.

Initially and based upon the identification of the social players in the territory, there would be a set of initiatives such as photography workshops, collective mapping and collective construction of models of the Cooperative Building and its surrounding neighborhood, aimed to make people aware of its history; and given the above mentioned demographic problem, those would also be designed for people from different age groups. Only at a later stage, would an 'open citizen laboratory' be organized, where the future of the Cooperative could be discussed directly with its members.

To sum up, the heart of the matter is that only the delineation of a shared bottom-up strategy could save the Cooperative. But due to the essential difficulty of such a process, higher public institutions – i.e. those established to protect the community as well as those established to protect the arts – should hopefully intervene to promote and support the process.

As regards our more modest Studio exercises, besides the ambition to produce a comprehensive study, we thought it would be reasonable if we became a bit more aware of the complexity of this preliminary work aimed to break the current deadlock, and to prepare future effective planning.

Following pages:
Fig. 2.1 to Fig 2.4
Reproduction of a 1963 pamphlet published by The Lordelo do Ouro Cooperative on the occasion of the inauguration of the Building.

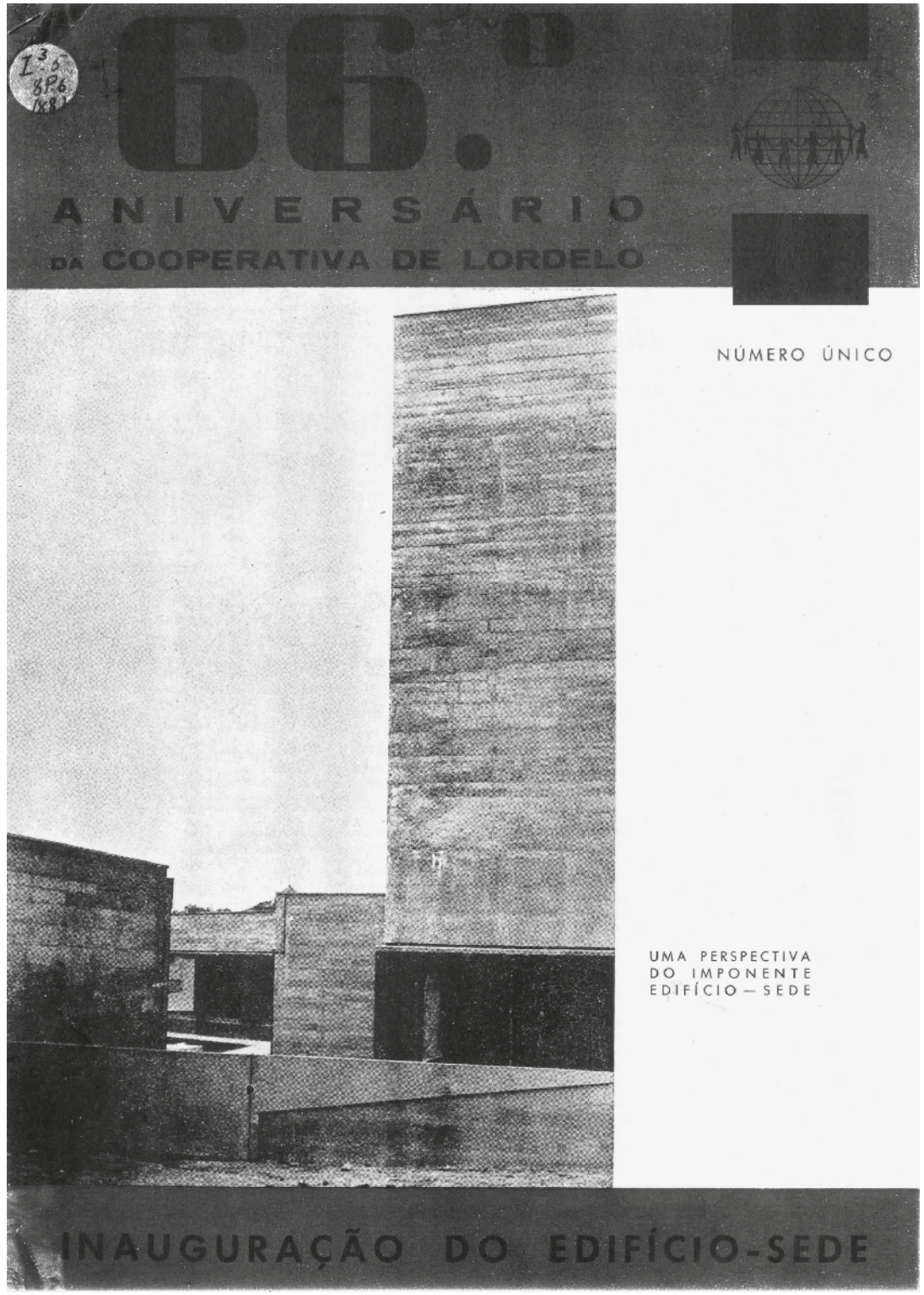


Fig. 2.1

ABERTURA

CONJUGARAM-SE as circunstâncias para que o final da obra que, por vontade dos sócios e com o sacrifício de muitos deles, a nossa Cooperativa ergueu, coincidisse praticamente com o acto da sua fundação. Feliz coincidência, portanto, que permite que se assinalem comemorativamente os dois factos: ***a inauguração da Nova Sede Social e o 30º aniversário da Cooperativa***, que, como consequência lógica do primeiro, tem este ano um significado especialíssimo.

Da necessidade de tão grande realização e das vantagens materiais da sua imediata entrada em funcionamento não falaremos aqui, pois é assunto que merece artigo próprio ou referência especial em ...mais... adiante.

Queremos, porém, falar das consequências que terão de advir, sob os aspectos espiritual, moral e social, da transferência das instalações obsoletas e desconfortáveis que ocupávamos, para outras edificadas especialmente para o fim a que se destinam e elevadas duma arquitectura rara ou única entre nós, que por certo não destoaria ao lado de obras de Niemeyer ou de Lúcio Costa.

Como objectivo primeiro, no campo espiritual e social, esperamos que as novas instalações tornem um maior interesse dos sócios pelas coisas da Cooperativa, que só a eles pertence, atraindo-os a Sede Social, aumentando o conhecimento e fortalecendo a amizade entre todos.

Disse há pouco tempo em Assembleia Geral um dos nossos consócios mais antigos que a Cooperativa tinha sido fundada por operários e que não era lógico que se afastasse das características que lhe foram transmitidas desde os seus princípios. Em nosso parecer essas características continuam a manter-se, visto que a generalidade dos nossos consócios é constituída por gente de trabalho. É lógico pensar que, no início, quando os associados não ultrapassavam as três dezenas, ou mesmo quando eram 100 ou 200, as afinidades materiais e culturais entre eles fossem mais homogéneas do que hoje, em que o número já ultrapassa os 2.500. Todavia, a diferenciação de cultura e de hábitos entre os sócios não é, de modo algum, inconveniente, se a solidariedade — palavra implícita na noção de cooperativismo — que venha a conseguir-se, puder fazer com que os dotados de maior bagagem cultural e moral comuniquem parte dela àqueles que, por dificuldades óbvias e sem culpa própria, foram impedidos da alfabetização, na acepção actual e universal do termo.

A falta de cultura não significa menos inteligência. Prova insofismável desta asserção são as intervenções judiciosas e sensatas a que por vezes assistimos em assembleias gerais por parte de pessoas que manifestamente carecem das habilitações mínimas para que se considerem letradas. Quantas vezes essas intervenções são mais oportunas do que outras provindo de pessoas cultas ou com a pretensão de o serem!

Da convivência amigável, franca, leal e sem preconceitos entre todos resultará uma elevação do nível educacional, com benefícios manifestos para a Cooperativa e, no grau que lhe corresponde como célula da Nação, para a própria Pátria. Precisamos de ser unidos, precisamos de conviver para nos comunicarmos uns aos outros as nossas qualidades, para podermos discutir aquilo que nos convém, para elegermos para os corpos gerentes pessoas verdadeiramente representativas dos associados, para criticarmos directamente, e não colaborando em campanhas surdas e malévolas, os actos das direcções, para lhes darmos sugestões e opiniões sobre as obras a realizar. Da intercomunicação frequente entre nós resultará necessàriamente uma mais correcta formação cooperativista, indispensável para que se encarem à luz de hoje, com realidade objectiva, os nossos problemas.

O «retorno» não pode ser, de modo algum, o fim primeiro do cooperativismo. Acima dele temos que colocar a solidariedade e a amizade, que aliás se reflectirão benèficamente naquele.

O espírito bairrista medieval que ainda hoje fomenta, entre certas aldeias do nosso País, disputas odiosas e por vezes com consequências desagradáveis, é antiprogressivo e dele não podem enfermar os cooperativistas. Uma cooperativa deve constituir um elo sólido duma grande cadeia formada por todas as cooperativas.

Eis a razão por que as nossas congéneres não poderão deixar de fazer-se representar nas festas comemorativas do nosso aniversário e da inauguração da nossa Sede.

Esta inauguração não nos diz respeito sòmente a nós. Trata-se da sede duma cooperativa e, como tal, ás suas instalações serão sempre benvindos todos os cooperativistas, militantes ou em potencial, das nossas congéneres, que connosco queiram debruçar-se sobre os problemas de interesse comum. É que, se a solidariedade entre os sócios duma cooperativa é factor de suma importância, igual grandeza reveste a necessidade de interligação entre as várias cooperativas. A maneira por que os vários elos que somos se devem unir para a formação duma cadeia inquebrável, é assunto a ser estudado por todos. Se conseguirmos formar essa cadeia forte, grandes benefícios serão experimentados por todos os sócios, especialmente por aqueles que, sob esses aspectos, mais dificuldades têm.

A Cooperativa de Lordelo do Ouro, aproveitando o ensejo que a publicação deste boletim comemorativo lhe oferece, saúda calorosamente todas as cooperativas de Portugal, fazendo votos por que em todas se verifique de modo ràpidamente crescente um progresso cooperativista, isto é, um progresso simultâneamente moral e material, e que as relações entre todas se vão estreitando cada vez mais, fortalecendo-se sempre a amizade que, afinal, individualmente todos desejamos.

Outubro de 1963.

Fig. 2.2

O AUTO-SERVIÇO - a melhor solução para a nossa Cooperativa

O êxito dos novos métodos de venda e distribuição de mercadorias, introduzidos há já alguns anos nos países mais progressivos e recentemente também entre nós, obrigou-nos a debruçar sobre a instalação do auto-serviço, na esperança de encontrarmos solução para o problema cada vez mais aflitivo da demora no aviamento ao balcão tradicional.

Pode dizer-se que antigamente a demora de algumas horas no nosso estabelecimento não constituía motivo de grande aborrecimento, e muito menos de espanto, para ninguém, pois a vida era menos vertiginosa e exigente para todos, mesmo para as donas de casa a quem as dificuldades económicas já obrigavam a procurar trabalho em fábricas ou oficinas.

Ao passo pachorrento do boi amigo, que então dominava as nossas ruas, o relógio **caminhava lentamente**; os dias, os meses, os anos **eram mais longos,** ninguém tendo pressa de encurtá-los... Esperava-se, sabia-se esperar, não se fazendo conta ao tempo, que então não era dinheiro...

Hoje, não. Temos pressa para tudo, pressa por tudo, até temos pressa... quando não temos pressa nenhuma.

Tudo corre à nossa volta: debaixo do chão o «metro»; na rua, o automóvel; no ar, o avião; a figura, no **écran** e a voz, no altifalante...

E quem pode subtrair-se à influência desta vida vertiginosa? Ninguém, e sobretudo as nossas mulheres cujos afazeres e lazeres são cada vez mais exigentes.

Em face destas realidades, que se não destroem com imprecações nem com lamentos mais ou menos saudosistas, procurou-se uma saída, pois não queríamos assistir impotentes, mais tarde ou mais cedo à debandada dos sócios, nem tampouco estancar o progresso dentro das nossas portas.

O auto-serviço aparece portanto, na altura oportuna e mal iríamos se o não lançássemos no novo e grande edifício que agora inauguramos.

A sua introdução no nosso meio obriga-nos a dar algumas explicações aos associados que porventura não tenham acompanhado de perto os nossos trabalhos.

Numa das reuniões da Direcção de 1962, depois de serem convenientemente ponderados os prós e contras da montagem do auto-serviço foi resolvido unânimemente adoptar este sistema no nosso novo edifício, o que em nossa opinião foi um grande passo em frente na nossa Cooperativa, cujas portas ficam deste modo abertas para o futuro.

Deve dizer-se, no entanto, que muitos e muitos espinhos se nos deparam, sendo o maior resultante de se não ter desde o início assente a sua introdução, estando as obras já muito adiantadas quando tal se resolveu.

À boa vontade do senhor Arquitecto autor do projecto da construção se deve realmente termos podido implantar o novo e revolucionário sistema de vendas no nosso novo imóvel.

Quando se começou a falar entre nós em auto-serviço, desde logo nos começámos a interessar pelo assunto, ouvindo e lendo as pessoas autorizadas e inclusivamente visitando estabelecimentos já funcionando como tal.

É nossa profunda convicção que este novo método de trabalho é de resultados garantidos e o único que corresponde à vida de hoje, em que tudo, queiramos ou não, se vai tornando diferente do passado.

Não podemos, no entanto, garantir que o nosso trabalho vá resultar sem senões, até porque ele é obra mais do nosso entusiasmo que do nosso saber, obra feita nas horas roubadas ao descanso, não fruto, como seria lógico, do estudo demorado e tranquilo.

Com todos os seus defeitos, que a pouco a pouco se irão eliminando, as suas vantagens serão desde logo evidentes, os seus resultados palpáveis.

Estamos certos que mesmo os cépticos serão prontamente conquistados pelo auto-serviço, ninguém querendo voltar mais ao passado uma vez habituados.

O seu funcionamento é simplicíssimo, podendo ser praticado desde logo até pelas crianças.

Necessàriamente que haverá algumas regras a que é preciso obedecer, mas que se aprendem em poucos minutos.

A todos os nossos consócios, sobretudo às esposas, pedimos a sua desinteressada colaboração, ajudando-nos com os seus reparos, sugestões e advertências a limar as arestas, a corrigir os defeitos que porventura venham a notar.

E, Amigos, todos de mãos dadas em frente por uma Cooperativa de Lordelo do Ouro maior e melhor.

Joaquim Vasconcelos

Fig. 2.3

A propósito do Edifício...

UMA das minhas muitas visitas de inspecção, ouvi alguém que passava na rua comparar o edifício da Cooperativa de Lordelo com um depósito de água.

Num país onde pràticamente não existe a crítica de arquitectura, este processo de apreciação traduz, pelo menos, o interesse instintivo cada um pelo espaço onde vive. Simplesmente, apreciar uma construção habitável pelo aspecto exterior é como saborear uma maçã pela cor da pele.

Usando o mesmo método, mais justo é comparar este edifício (ou qualquer outro) a um organismo, com o seu esqueleto, o seu coração, os seus pulmões, etc.

Da mesma forma que o exterior dum organismo depende da adaptação dos seus orgãos às respectivas funções, assim acontece com o aspecto exterior duma construção.

Algumas pessoas imaginam um edifício mecânicamente, por associação de ideias. Imaginam as quatro paredes, com aberturas para deixar entrar a luz (janela) ou os habitantes e os móveis (portas). Imaginam o telhado, o pavimento, as divisórias, ou melhor, reconstroem imagens anteriores desses elementos. Dentro dessas imagens arranjam lugar para os fins em vista — para habitar, para trabalhar, para descansar o corpo ou o espírito.

Mas as paredes são envólucros de espaços adequados a determinadas funções. As janelas e as portas não têm formas assim ou assado — dependem do que e da maneira como se quer iluminar o interior e da mais apropriada relação com o exterior. Nem as ligações entre espaços são tão simples que se possam resumir a portas para a gente passar duns para os outros.

Sendo assim, é necessário inverter o método de trabalho: conhecer o que se vai passar dentro dum edifício e o que se passa fora dele.

Assim surge como que o molde que o enformará.

Esse molde não depende, como é evidente, do cérebro duma só pessoa. O arquitecto é o observador atento dos problemas a resolver e das discussões que à volta desses problemas se levantam.

Em vez de ser função duma soma de opiniões, o resultado do seu trabalho será uma síntese de todos os contributos, depois de escrupulosamente discutida e verificada a justeza de cada um.

Daí a desilusão de alguns, quando não vêem totalmente materializada a sua particular visão dos problemas. Desilusão que pode levar ao malogro a mais bem intencionada iniciativa.

Não sucedeu isto em Lordelo do Ouro. As sessões de trabalho, realizadas ao nível de comissões designadas pelos sócios, ou de Assembleias gerais, deram lugar a um enriquecimento gradual da primeira reacção do arquitecto ao programa (apresentado pela Comissão de Obras, justamente com um metódico estudo de funcionamento, da autoria do arq.º Jacobetty).

Contribuiram, ainda, para evitar soluções pouco realistas.

O resultado pode parecer estranho para quem passa na rua, apressadamente, por vezes de automóvel (somos sempre apressados!)

Mas suponho que não será estranho para quem o use, quotidianamente, com ou sem pressas.

Ou seja, para aqueles por quem e para quem foi construído.

Outubro de 1963

Arq.to Álvaro Siza

Fig. 2.4

English Translation of Texts Reproduced in Figs. 2.2 to 2.4.

Opening

Thanks to our 'associates determination' and the sacrifice of many, the necessary conditions were gathered for finishing the construction of our Cooperative's new facilities at the same date as its foundation. It was a happy coincidence indeed being able to celebrate the two facts simultaneously: *the inauguration of the New Headquarters and the Cooperative's 66th anniversary,* which, as a consequence of the former, is so very special this year.
The need for accomplishing such a work and the material benefits of its immediate functioning shall not be mentioned here since they are worth an article of their own or being mentioned in a solemn session.

We would like, however, to point out the consequences, from a spiritual, moral and social perspective, of moving from the obsolete and uncomfortable facilities we once were to the ones specially designed for their intended purpose and fraught with a rare or unique architecture hardly seen among us that would certainly pair up with Niemeyer or Lúcio Costa's works.

As main objective, spiritually and socially speaking, we hope the new facilities lead to an increased interest on the part of the associates in the Cooperative, which belongs to them alone, luring them to the Headquarters, increasing the knowledge and strengthening the friendship among all.

It was not that long ago that one of our oldest partners stated at the General Assembly that the Cooperative was founded by workers and that it did not make sense for it to deviate from its original features. As far as we are concerned, those features still remain since most of our partners are working people. It is only logical to think that, in the very beginning, when the number of associates was no higher than 30, or when they amounted to 100 or 200, the material and cultural affinities were more homogeneous than today when they exceed 2500. Nonetheless, the differentiation of culture and habits among associates is by no means inconvenient, if solidarity – word implied in the notion of cooperativism – likely to happen, were to enable those endowed with greater cultural and moral baggage to transmit part of it to those who, due to obvious difficulties and no fault of their own, were kept from literacy, in the present and universal sense of the term.

The lack of culture does not mean you are less intelligent. An indisputable proof of this are the judicious and wise interventions we have seen in general assemblies by people who clearly lack the minimum qualifications to be regarded as literate. How often are these interventions more propitious than those from educated people or from those who claim to be so!

A friendly, honest, loyal and unprejudiced coexistence among all shall result in a higher educational level, with clear benefits for the Cooperative and, correspondingly by being part of the Nation, for our

Homeland. We need to stick together, to spend time together in order to pass our strengths to each other, to discuss what suits us best, to elect for the governing body people who can actually represent the associates, to criticize directly, instead of collaborating in deaf and malevolent campaigns, the actions of the board and make suggestions and give opinions about the works to be undertaken. I am certain that frequent communication between us shall result in a better knowledge about what it means to be part of a cooperative, something we deem essential today as to face issues in an objective way.

"Profit" should not be, by any means, the main goal of cooperativism. Above it all, must come solidarity and friendship, which, we believe, can even benefit the former. A certain medieval neighborhood spirit, still present in certain small villages of our Country, responsible for hateful disputes with sometimes unpleasant consequences, is anti-progressive and cooperative members should not be affected by it. A cooperative should be a solid link in a big chain formed by all the cooperatives.

This is why our counterparts must be represented at the festive events of our anniversary and Headquarters' inauguration.

This inauguration does not concern only us. We are talking of the headquarters of a cooperative and, as such, we shall always welcome cooperative members, militants or potentially any counterparts that wish to address any common issues. It's just that, if solidarity among associates is vital, so is the interconnection between cooperatives. How to join forces in order to create an unbreakable chain should be a topic studied by all of us. If we manage to build such a chain, great benefits shall come to all associates, especially to those who struggle the most.

Seizing the opportunity presented through the publication of this commemorative bulletin, the Lordelo do Ouro Cooperative would like to warmly welcome all the Portuguese cooperatives, wishing them a swift and increasing cooperativist development, in other words, a simultaneously moral and material progress, and that the connections between them become stronger, by strengthening the friendship we, individually, aspire to.

The Editorial Staff, October 1963

Self-Service – The Best Solution for Our Cooperative

The success of new methods of sales and freight distribution introduced a few years ago in more progressive countries and recently among us, forced us, so to speak, to learn about self-service in the hope of finding a solution for an increasingly troubling issue which is how long it takes to serve customers at the counter.

One could say that in the past taking a few hours to serve our customers was not something of a bother, let alone wonder, because life was less vertiginous and demanding for all, even for housewives whose economic hardships made them go looking for jobs in factories or repair shops.

Like the friendly, peaceful ox that once owned our streets, the clock paced slowly; days, months, years *were longer*, no one hurried to make them shorter... People waited, they knew how to wait, not minding time, which wasn't money then...

Not today. We are always in a rush, for and about everything, even... when we are not in a rush at all...

Everything around us passes running: below us the "underground"; on the street, the car; on the air, the plane; the figure on the screen and the voice on the speaker...

And who can escape the influence of this vertiginous life? Nobody, especially our wives, whose chores and leisure are even more demanding.

In view of these realities, which cannot be erased by more or less nostalgic cursing or wailing, we had to look for a way out, because we did not wish to either watch powerless while associates, sooner or later, left, or to stop progress inside our gates.

Thus, self-service comes at the right time and it would be a pity not to introduce it in the new and large building we have just inaugurated.

Its introduction makes it necessary for us to explain it to those associates who have not been able to follow our work closely.

During one of the Board meetings in 1962, and after weighing all the pros and cons of self-service, we have unanimously decided to adopt the system, which, as far as we are concerned, was a huge step forward for our Cooperative, whose doors are thus open towards the future.

We should, nevertheless, be aware of the difficult times we have ahead due mainly to the fact that we thought about introducing the system when the works were already advanced.

We owe the chance of adopting this new and revolutionary system of sales in our new building to the good will of the Architect in charge of the project.

Ever since we first started talking about self-service, we immediately got interested in the matter, having heard and read authorized people, and even visited places where it had already been implemented.

We are deeply convinced that this is a new work method with guaranteed results and the only one that corresponds to our reality, where, whether we like it or not, everything changes.

However, we cannot guarantee that our work will proceed without hiccups, especially since it is the result more of our enthusiasm than of our knowledge, of time stolen from resting hours and not, as it should be expected, of a long and quiet study. Regardless of all its faults, which shall be eliminated little by little, its benefits will soon be evident and results palpable.

We are certain that even the more skeptical will be conquered by self-service, with no one, once used to it, being willing to go back in time.

Its functioning could not be easier, with even children being able to perform it.

There will, certainly, be a few rules to follow, which will be easily learned.

We ask that all our associates, mostly the wives, help us selflessly, through their observations, suggestions and reminders, to smooth out some rough edges and correct the defects they may find.

And, Friends, let us hold hands towards a bigger and better Lordelo do Ouro Cooperative!

Joaquim Vasconcelos

About the building...

On one of my many checking visits, I heard someone who was passing by the street compare the Lordelo Cooperative building to a water deposit.

In a country that lacks architecture criticism, this sort of assessment translates, at least, an instinctive interest for the places we live in. Simply, appreciating a building for how it looks is like tasting an apple by the color of its peel.

Using the same method, it would be much fairer to compare this building (or any other building for that matter) to an organism, with its skeleton, heart, lungs, etc.

The way the exterior of an organism depends on how its organs adjust to their functions, the same happens with the exterior of a building.

Some people imagine a building in a mechanical way, by associating ideas. They imagine four walls with windows to let the light in, or the dwellers and furniture. They imagine the roof, the pavement, partitions, or better still, they rebuild former images of those elements. Then they will decide on what they will be used for – living, working, resting the body or the mind.

But walls are spaces' casings suitable for certain functions. The windows and the doors do not have particular shapes – they depend on what or how one wishes to light the interior and the most suitable connection to the exterior. On the other hand, the connections between spaces are not so simple that can be boiled down to doors used by people to go from one space to another.

Therefore, it is necessary to reverse the work method: getting to know what will happen inside a building and outside of it.

Thus emerges the mould that shall shape it.

Obviously, the mould does not depend on the mind of a single person. The architect is the person who observes closely any issues in need to be solved and the debates around those issues.

Instead of resulting from the sum of several opinions, his work shall be the synthesis of all the contributions, after scrupulously discussing and analyzing all of them.

Hence the disappointment of some when their specific vision of the issues is not fully materialized. This kind of disappointment may lead well-intentioned initiatives to failure.

Such was not the case with Lordelo do Ouro. The work sessions, led through committees appointed by members, or General Assemblies, resulted in a gradual enrichment of the architect's first reaction to the program (presented by the Building Commission, precisely with a methodical study of the functioning by architect Jacobetty).

They were also useful in avoiding unrealistic solutions.

The result may seem weird for people passing by in great haste, sometimes by car (we are always in a hurry!).

But I suppose it will not feel weird for those who use it on a daily basis, with or without haste.

That is to say, for those who built it and for whom it was built for.

architect Álvaro Siza, October 1963

The production of consistent scenarios

We understand that the process we wish to set in motion through the afore mentioned actions would be just the first step of something that could actually bear some good fruits; but we also think it would be appropriate, at a certain point, to launch some draft hypotheses about a possible strategy policy for the future of the Cooperative. To put it simply, if we compare the problem to the challenge of putting together a jigsaw puzzle, the availability of a global draft would be something indispensable from the onset **[Fig. 2.5]**.

In any case, to be able to outline a functional brief for the design stage of the exercise we had to create a tentative scenario.

Thus and perfectly aware of the inherent uncertainty, students were asked to imagine and set out a tentative strategy which could give the Building a new life.

According to the information we obtained from ADILO[38] and NDMALO,[39] the main collective social associations in the neighborhood, there are many areas in Lordelo with high inequality and social divergence rates. Therefore, in general terms it can be said that new functional layouts should somehow preserve some of that convivial atmosphere offered by the existing structure and the permanent quality of its spaces. That means particularly the material quality of the functional organization, which the original design assumed as spatial representation of the inherent collective enterprise.

In this sense, with regard to the potential value of a consumers' cooperative it is also to consider that supportive 'buying groups' are currently oriented towards policies that integrate in their mission (solidarity between members of the group) new trade principles which may include, for instance, choosing products respectful of the environment and the producers.

Students were encouraged to attempt to draft a strategic plan by combining the need to reveal and retain the Cooperative's importance as an institution, as well as to identify feasible and compatible new functions and available resources.

For instance, in 'Coop 2.0' (a proposal devised in detail by Silvy Dias and Diogo Araújo) the strategy's concept for the cooperative's renewal, consisted of the combination between the initial purposes of an "humanitarian society for all classes of consumption, production and construction", and the inclusion of a flexible program for an accessible library aimed to host also a collection on the Portuguese Cooperative movement **[Fig. 2.6]**.

Another example of the attempt to revitalize the Cooperative has been proposed (by Andreia Soares and Leandro Alves) under the motto "a new use/function for a new life" – a community gym organized directly by local users capable of ensuring the structure's functioning at minimum cost; that is to say, minimum interventions

38. *Agência de desenvolvimento integrado de* Lordelo do Ouro Integrated Development Agency.

39. *Núcleo de Defesa do Meio Ambiente de* Lordelo do Ouro Environmental Defense Center.

to make the Building apt for a new service. Once it restarted, it would be possible to apply for institutional funding (State and/or European) for its proper conservation. By following those steps, it would have been possible to adopt phased (also adaptable) interventions along the years. And in technical terms this could also have meant practical operations based on the superimposition of the provisional structures as an alternative to the strictly intended restoration **[Fig. 2.7 and Fig. 2.8]**.

Finally, in case students were able to imagine and give it proper substance they would also win backing for their proposed strategy. In that regard, it is worth mentioning a proposal to integrate the Building within the Serralves Foundation compound,[40] only a few tens of meters away, since it could profit from the quality of the space to exhibit any special collections. Regrettably such a hypothesis would just be a desperate plan to save the Building, whether the Cooperative survives or not **[Fig. 2.9]**.

40. As reported in www. serralves.pt "During the immediate period following the 1974 revolution, the city of Oporto hosted several movements that demanded the creation of an exhibition space in the city, in order to exhibit art produced at that time. Several initiatives, in particular the Centre of Contemporary Art, that remained in operation until 1980, played a key role in consolidating the artistic context in Oporto. (...) The State acquired the Serralves Estate in December 1986 for this purpose." Then Serralves Park and Villa were opened to the public on May 29, 1987. In pursuit of its statutory objectives, the Foundation signed a contract in March 1991 with architect Álvaro Siza, in order to draw up an architectural project for the Museum: construction of the "National Museum of Contemporary Art". Encompassing the Serralves Villa, Park, Museum of Contemporary Art, Auditorium, Library and the recently built House of Cinema dedicated to Manoel de Oliveira – managed within the orbit of its mission – the Foundation annually presents a diversified program of initiatives, aimed at promoting debate and reflection on art, nature and the landscape and provide an innovative form of art education while taking an active part in reflection on contemporary society.

Fig. 2.5
Plan of the Lordelo do Ouro neighborhood, composed by several housing complexes and areas, namely: Aleixo, Antonio Bessa Leite, Condominhas, Pasteleira, Penoucos, Gomes da Costa, Mouteira, Rainha Leonor, and several social and/or cultural associations: the parish council, the Lordelo cooperative, Pasteleira social center, Rainha Leonor social centre, Pinheiro Torres social centre, Serralves Museum, the House of the Arts (Casa das Artes) (drawing by Tatiana Campos and João Paulo Brandão).

Caption

1. Bairro do Aleixo
2. Bairro António Bessa Leite
3. Bairro Condominhas
4. Bairro Costa Gomes
5. Bairro Penoucos
6. Bairro Pinheiro Torres
7. Bairro Rainha D. Leonor
8. Cooperativa Lordelo
9. Junta de Freguesia
10. Centro Social Bairro da Pasteleira
11. Centro Social Rainha D. Leonor
12. Centro Social Pinheiro Torres
13. Centro Social Paróquia Nossa Ajuda
14. Museu de Serralves
15. Casa das Artes
16. Lar de Lordelo

Fig. 2.6
Layout for the functional renewal of the Lordelo Cooperative called 'Coop 2.0', on the ground floor past the entrance lobby (1) the food storage and distribution areas (4 and 5) are integrated in a hall for collective activities such as workshops (3), while (2) indicates technical areas. At the first floor, there is an open access reading (7) hall (also adaptable for conference room) and a proper study room (6), with archive; we can find other reading rooms (6) at the second floor (drawing by Silvy Dias and Diogo Araújo).

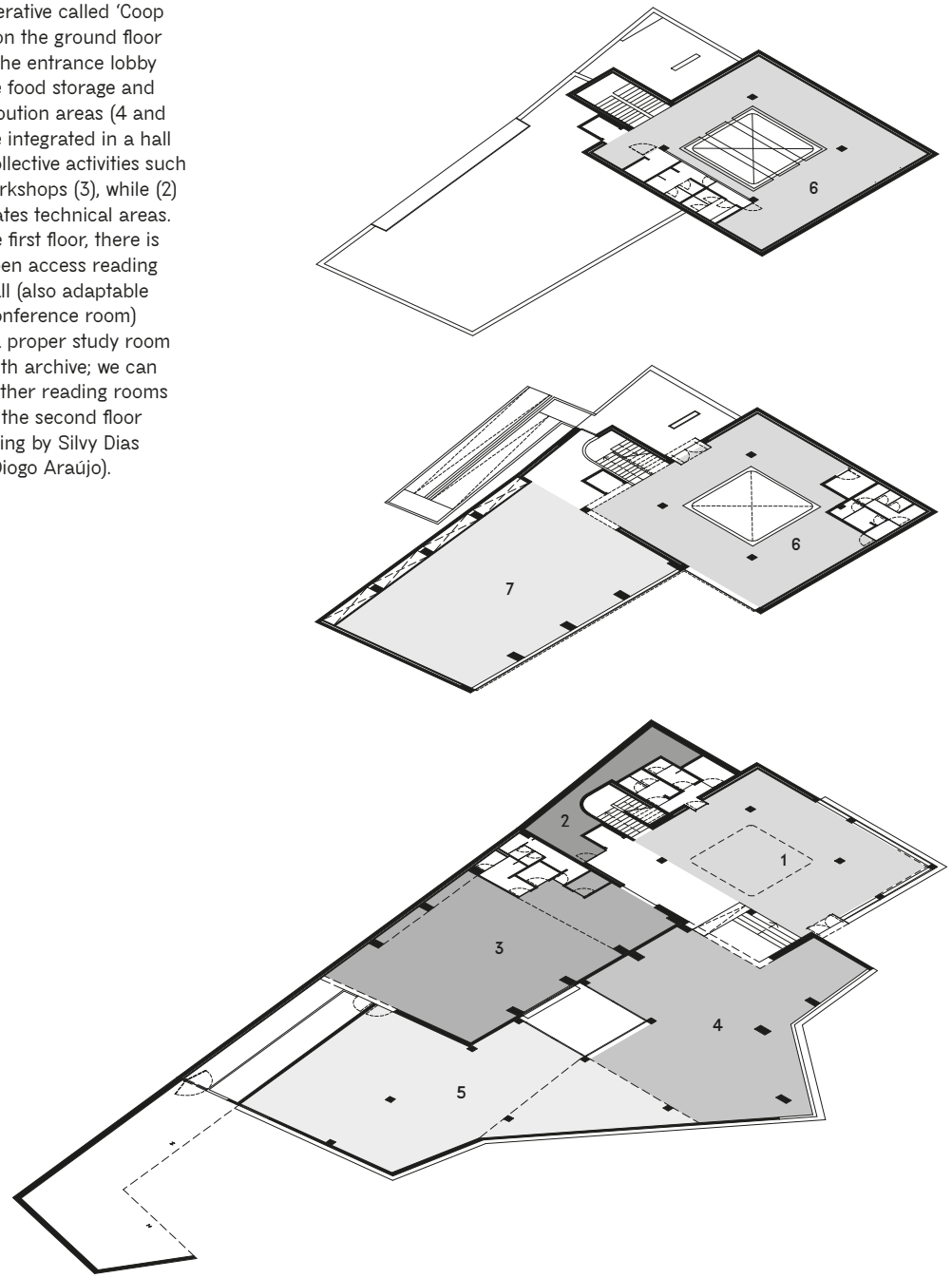
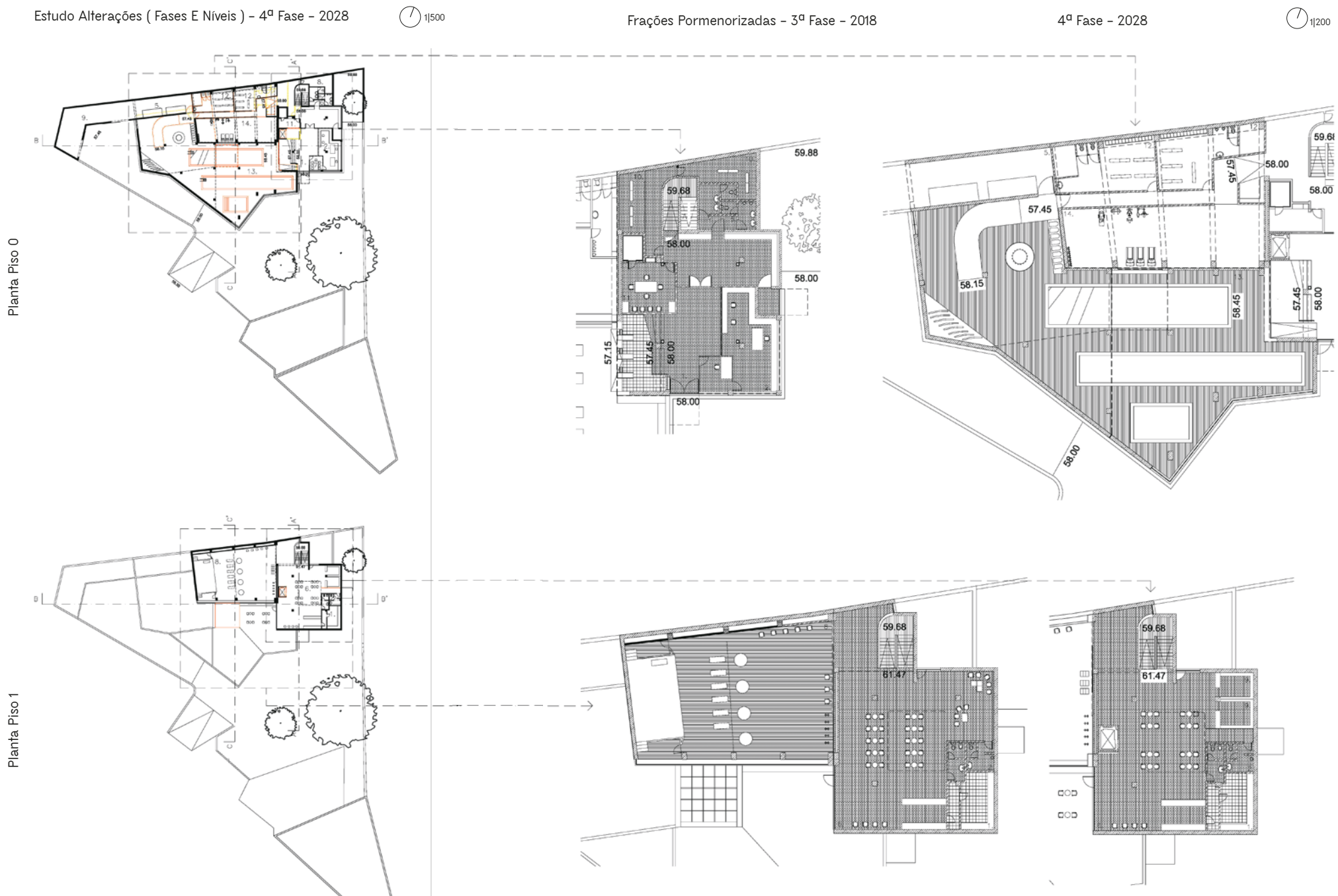


Fig. 2.7
Simulation scheme of phased adaptable interventions towards the conservation of the Building (drawing by Andreia Soares and Leandro Alves).



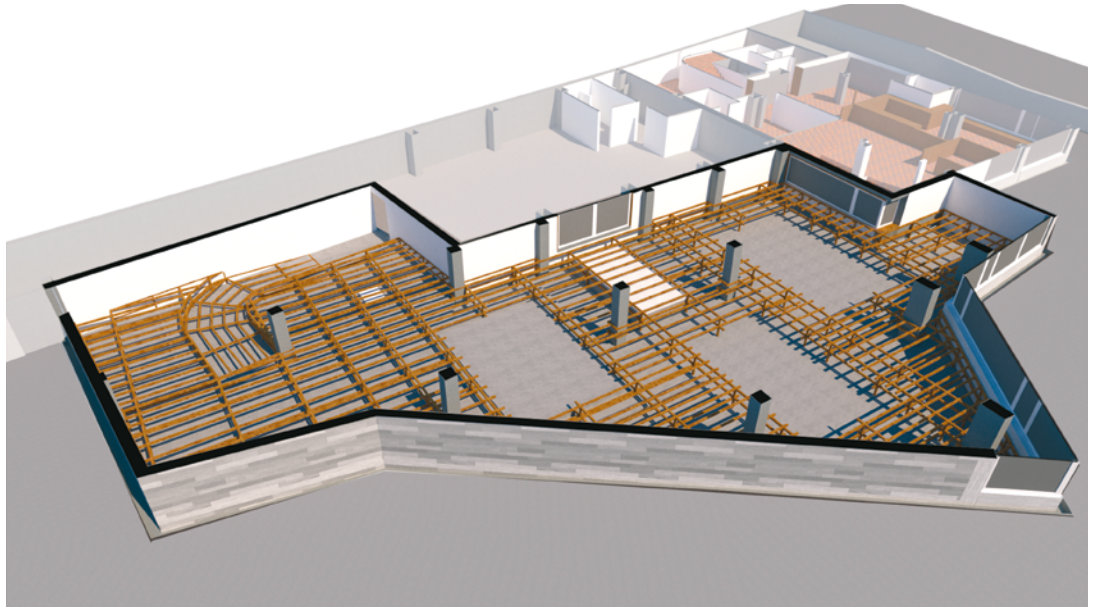


Fig. 2.8
Simulation scheme of temporary interventions based on the adoption of the provisional superimposition of structures (drawing by Andreia Soares and Leandro Alves).

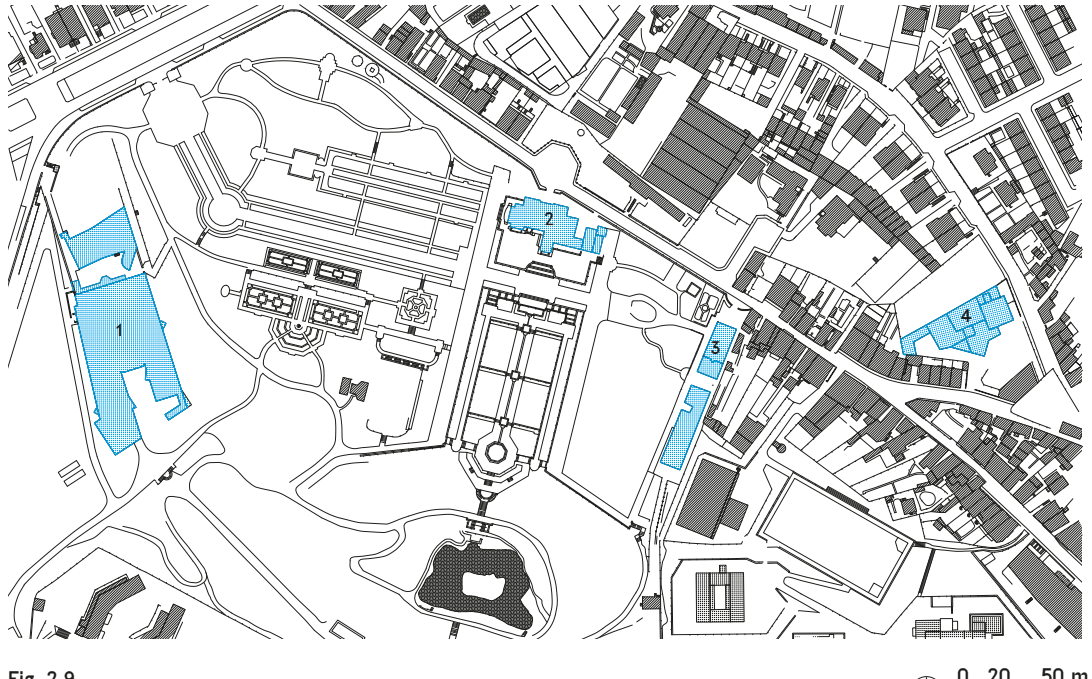


Fig. 2.9
The urban sector of Porto where the Serralves Foundation is grounded with its distinct buildings (1) The Museum of Contemporary Art, the Old (2) Serralves House and the (3) House of Cinema named after Manoel de Oliveira) and the proposed (4) Museum Mirò, i.e. the idea to host an existing Serralves collection in the former Lordelo Cooperative (drawing by Vânia Silva and Hugo Mendonça).

3. Design Samples of the Building's Conservation and Refurbishment

3.1

Architectural design prototypes for spatial adaptations of the Building

Just as we recognized the need to clear up a few general conditions for the Cooperative to become a lively institution once again, we also thought it necessary to formulate definite design proposals (no matter how conjectural those might be) to keep the whole exercise from slipping into a cloud of indeterminate heterogeneity.

To put it quite plainly, our interest in including topics that are outside of architecture's conventional scope (those social and economic questions above exemplified) manifested itself first through the inclusion of experts from different fields a propos design's relationship with these other disciplines which, in our case, were conservation and its contribution to social and economic solutions.

Therefore, while outlining a renewed functional and managerial strategy, we intended to investigate, in architectural terms, what could be the number (minimum yet sufficient) of alterations to introduce as to put a new strategy into practice.

As regards to the overall ground-floor plan, all of the different hypotheses we imagined were based on the assumption that the free plot of land next to the Building on the north side should be integrated in the new proposed layout of the space.[41]

In the case of the previously mentioned proposal called 'Coop 2.0', the option was to use the additional land to organize the access of cars and parking, as well as a small sports field. Furthermore, the passage between the park and the Building was proposed in the form of a ramp as a separately added element that would create a new access to the Building that sort of blended in with the square block's first level, and simultaneously, take advantage of an existing door-window. Such hypothesis would also allow the recovery of the south side lawn areas **[Fig. 3.1]**.

Similarly, the creation of a circular path all around the Building was outlined in a proposal called 'The path' (formulated by Álvaro Mendes and Nuno Gonçalves); it encompassed the north side allotment, which included a parking area and a playground. In this case the passage between the different ground levels on the north and the south sides would be solved with a ramp on the flank of the tower block at the end of Rua Professor Antonio Nobre; furthermore a stair should be added on the opposite end, at Rua de Cima. On the other hand, it would be essential to reconstruct the original alignment of the demolished sentry-box (mentioned in chapter 1.1), here replaced by a simple wall aimed at accompanying the path leading to the entrance of the Building **[Fig. 3.2]**.

Students Inês Torres and Inês de Castro intended to maximize the garden area around the Building and in order to do so they included a greenhouse with a similar shape and position to

41. In 1969, right after the Building completion, when the Direction of the Cooperative asked Álvaro Siza about a possible extension to house a kindergarten, he suggested they should acquire the free plot of land on the north side and he also designed a scheme for its occupancy. The Cooperative eventually purchased that plot of land, which remained unoccupied until today. An excerpt of the technical report Siza delivered on July 15th, 1969, is added here (See File nr. PT-FS-ASV-08-2-1-3-0142 in Álvaro Siza Archive The Serralves Foundation): *"Assim, fez-se uma avaliação das vantagens de aquisição parcial ou total do talho anexo, a norte, após sondagens efectuadas pela Direcção, junto do respectivo proprietário. Resultou desta avaliação o estudo de duas hipóteses possíveis de ampliação do edifício, adquirindo apenas a parte menos valorizada do talho referido, anexa ao armazém, ou adquirindo-o na sua totalidade. Para este ultimo caso, verificou-se a possibilidade e condições de ocupação do terreno, de acordo com os elementos colhidos ao projectar o edifício sede, e de que na altura se conseguiu aprovação. Destes estudos é apresentado o resultado, em planta geral incluída no ante-projecto".* "So, the advantages of partially or totally acquiring the adjoining north side plot were weighed after the board of directors asked the owner

himself. This resulted in two possibilities of extension of the building, either by acquiring only the less valuable portion of the mentioned plot, attached to the storage room, or by fully acquiring it. As for the latter, the possibility and requirements for taking the plot were checked according to the data gathered while designing the main building, which was then approved. The findings on these studies are reflected on the overall plan included in the preliminary draft".

42. As commented in our previous essay *Notes about Teaching Architectural Design for the Conservation of Modern Built Heritage*: when challenged with the elaboration of a refurbishment design task students often tend to use the building as a platform for applying their ideas, that is to say to add something derived from outer allusion sources. And it takes time to shift their attitude towards a kind of design that could derive from the ideas embodied into the existing building. And the education for re-use needs to introduce the adoption of an interventional paradigm of 'precise adjustments' over the conventional paradigm of 'prominent additions'. See V. Riso, (with contributions of A. Siza, C. Machado, I. Valente, J.L. Gil Pita and J.B. Távora and preface by Huber-Jan Hencket), *Reclaiming into use Fernando Távora's Municipal Market of Santa Maria da Feira. A Design Studio exercise about Modern Heritage developed within a Course Unit of the 5th year of the Integrated Master Degree at the School of Architecture of University of Minho during academic year 2015–2016*, Universidade do Minho – Lab2PT/EAUM 2018, Guimarães, pp. 179–180.

the one Álvaro Siza himself had suggested and designed in the technical report delivered on July 1969, and in which the volume corresponding to the expansion was that of the tower block, but placed in a rotated position so as to keep parallel with Rua Professor Antonio Nobre **[Fig. 3.3 and Fig. 3.4]**.

Regarding the layout of the interior spaces, the main issue was the restoration of the original features so as to somehow mitigate the uncontrolled alterations made over the years. Of course the spatial quality of the original layout is in itself enough to justify its almost literal restoration. Nevertheless, our effort aimed at finding – in convergence with the functionality of the renewed program of the Building – other reasons besides abstract ones such as the aesthetic value of the original features. In other words, we tried to avoid being rigid and to understand in each situation the technical feasibility, the evaluation of the inherent cost and the material benefits of the re-establishment of the previous form. This eventually led us to some hidden values and potentialities (i.e. not evident at first sight) of the original design.

In terms of methodology, we chose the direct comparison between the existing (in this case altered) situation and the proposed restoration mainly through isometric representation; that is to say the exact continuation of the first part of our study.

A perfect example of that was the re-opening of the tower block's three-story high atrium **[Fig. 3.5 and Fig. 3.6]**.

It goes without saying that students' design proposals could have entailed different decisions; which means that the adoption of alternative strategies for the social and economic recovery of the Cooperative could lead to alternative ways of refurbishment. Since we were dealing with a Building in need of a new way of 'being lived', we could not limit the range of possible strategies, and correspondingly we could not think about a so-called 'scientific' restoration as the only possible solution. Rather we chose to reach a practical balance between reasons of space and functions.

And in this sense –generally speaking about other similar case studies – nothing prevented the Building itself from inspiring some functional possibilities. Ultimately, what matters is the commitment to sincerely look at the existing construction as a valuable resource in itself and not just a physical support for outsourced intervention.[42]

For instance, the re-opening of the small courtyard inside the sales hall was unanimously regarded as necessary by all of the students, whose first goal was to make the natural ventilation and lighting work again. On the other hand, the retrieval of the initially U-shaped path of access to the sales hall was considered (at least temporarily) dispensable in order to limit the extension and costs of the whole intervention **[Fig. 3.7 and Fig. 3.8]**.

Each student's proposal, here presented in excerpts, required a certain degree of completeness. Overall we should make clear that our collective work was a kind of exploratory research aimed to recognize problems, to outline operational measures and organize a collection of design samples as the final result. That is to say, even though our exercise was based on reality, none of the global or detailed proposed solutions were intended to be absolute, rather part of a set of interlocked hypotheses.

About the selected pieces of work, we would also like to mention some of the original details on the interior design finishing, namely the restroom inside the storage room or the library room at the tower block's upper level. In fact, the preservation of those parts was a given prerequisite everybody was asked to comply with.

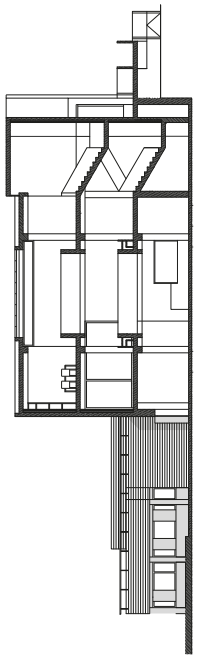
Even so, students were allowed to imagine all sorts of alterations, but they were also asked to rationalize any advantages and disadvantages of each proposal. That is the case of a few of them who obstinately proposed both recovering old alterations and making new ones. Their proposal on functioning was investing in the integration of educational activities, which also meant replacing the ground floor storage room with a cafeteria, as well as cutting out some openings in the first floor slab so as to naturally lit it. Interestingly enough, this turned out to be an adaptation which meant preserving the existing ventilation shaft, allowing cross air circulation coming from the north wall, but also adding a skylight function to the same structure. From a technical point of view, the planned cuts only included the floor slab, without touching the load bearing concrete beams, which means they somehow constituted a reversible intervention **[Fig. 3.9 and Fig. 3.10]**.

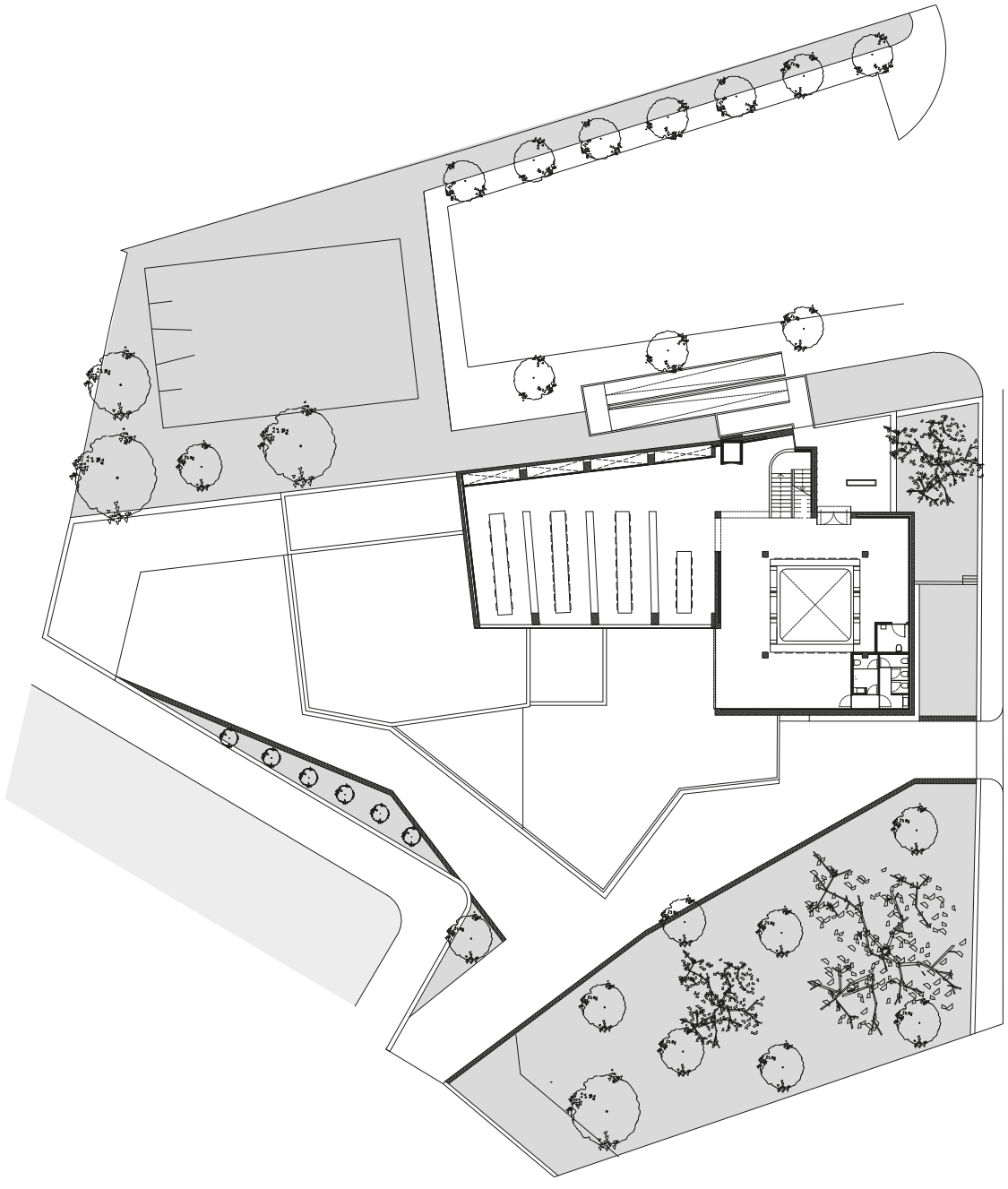
Another inescapable issue we have been dealing with and which is here reported, apart from the uncertain results inherent to its methodological implications, is the need to insert an elevator without causing major impact, something obviously necessary in case the Building is to be refurbished.

We could use this issue to help define a mitigation strategy concerning compliance measures or elaboration of so-called 'equivalent solutions' as regards to accessibility, hygiene, and safety regulations. This was addressed in the development of our exercise by also keeping in mind several cases in which the 'slavish' enforcement of regulations and the use of conventional compliance measures have led to a distortion of Modern buildings.

Two different insights are here reported: the first one is concerning a process of evaluation by comparison of a different position option for the elevator; the second one is focused rather on the logic of selection of construction materials **[Fig. 3.11 and Fig. 3.12]**.

Fig. 3.1
Overall plan of the Building's reorganization in the 'Coop 2.0' proposal with transversal section showing the outside ramp added to access the Building from the proposed car parking placed in the adjoining north side plot (drawing by Silvy Dias and Diogo Araújo).





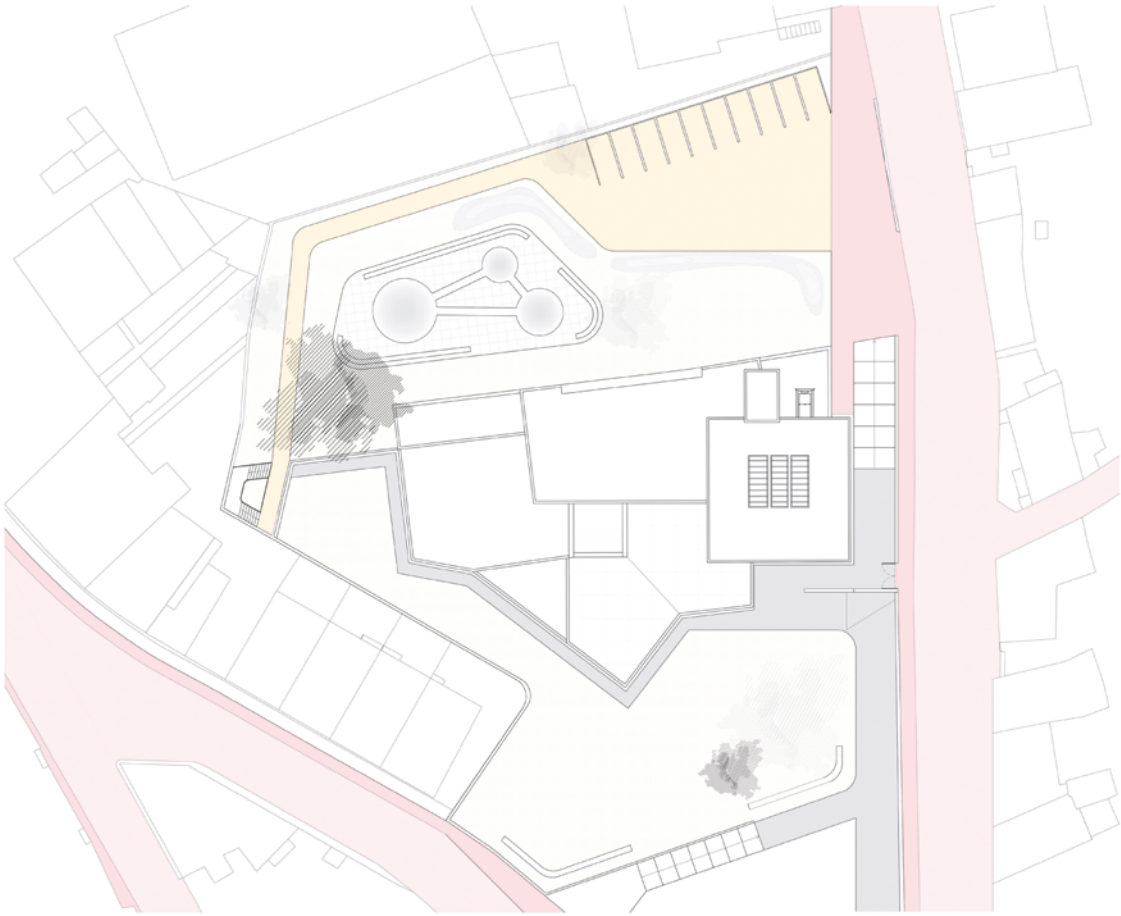


Fig. 3.2
Overall plan of the Building's reorganization in the proposal named 'The path' (drawing by Álvaro Mendes and Nuno Gonçalves).

Fig. 3.3
Overall plan of the Building's reorganization in the proposal named 'The garden' (drawing by Inês Torres and Inês de Castro).

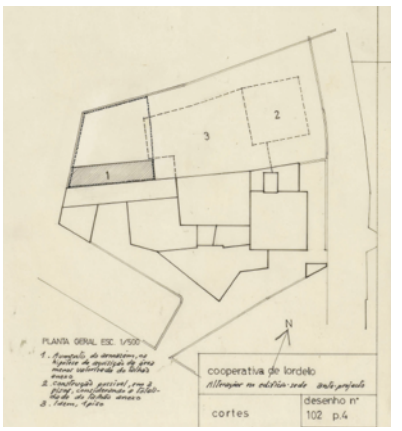


Fig. 3.4
Álvaro Siza's original drawing of the hypothesis for an expansion of the Building in the plot of land on the north side (Álvaro Siza Archive © Serralves Foundation).

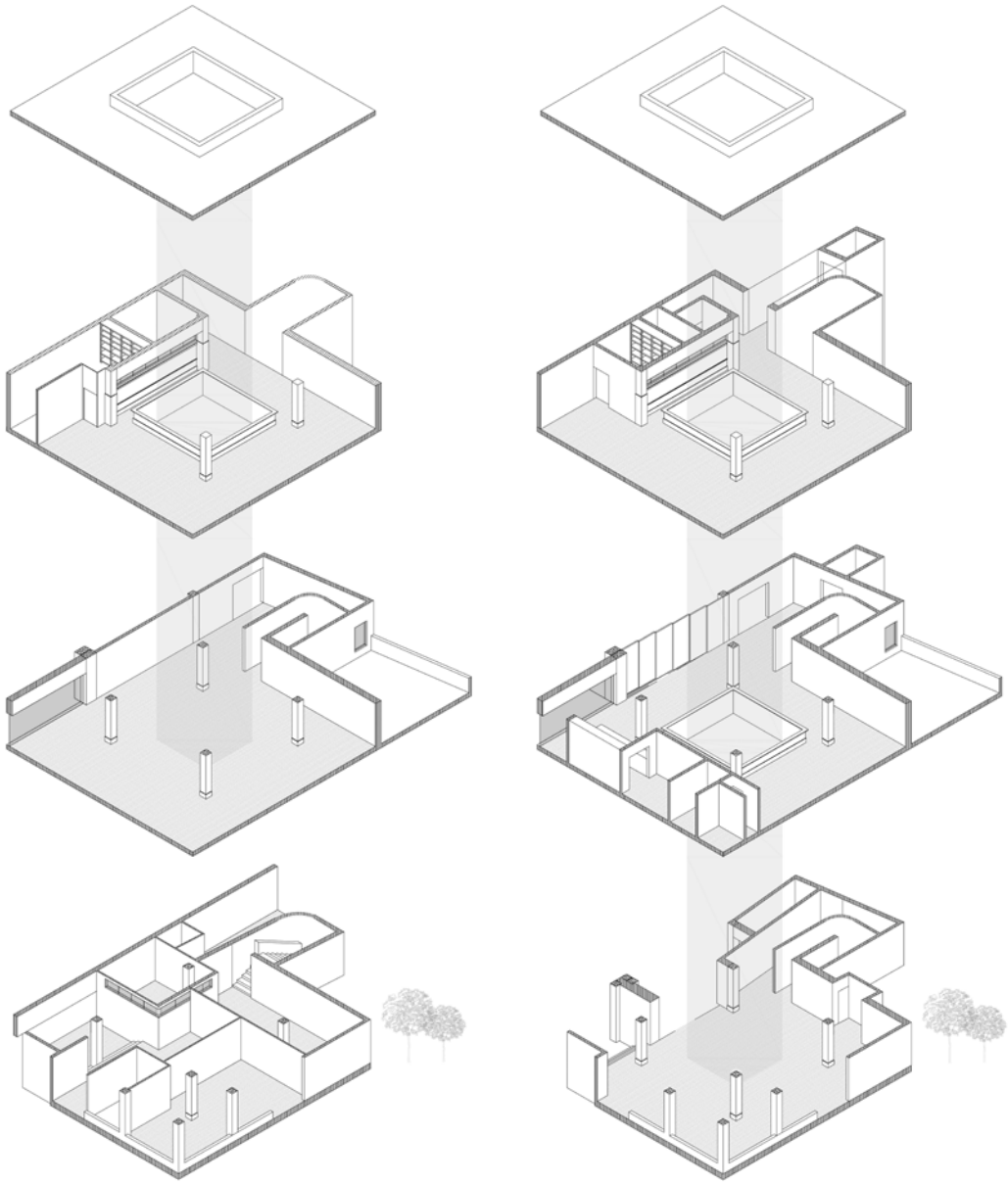
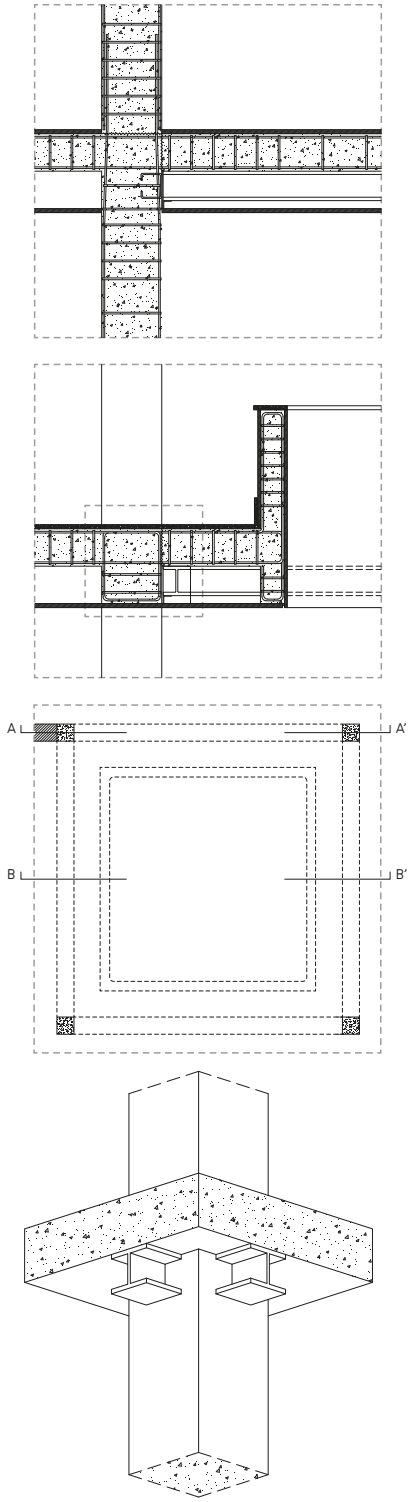


Fig. 3.5
Isometric split view of the inside layout of the tower block, where the existing (altered) situation and the proposed restoration are compared (drawing by Tatiana Campos).

0 1 3 5 m

Fig. 3.6
Hypothesis about the construction feasibility of the re-opening (cutting-out of central square area) of the first floor's concrete slab (drawing by Tatiana Campos and João Paulo Brandão). The solution they came up with involved removing the secondary pillars (later added) and replacing them with steel profiled beams, supported by the original pillars, strengthening the structure and the load bearing slab.



0 0.5 1 m

Fig. 3.7
Isometric split view of the refit of the whole Building, where the re-opening of the tower block's first floor slab and of the small courtyard inside the sales hall, and the retrieval of the initially U shaped path of access to the sales hall, were designed (drawing by Álvaro Mendes and Nuno Gonçalves).

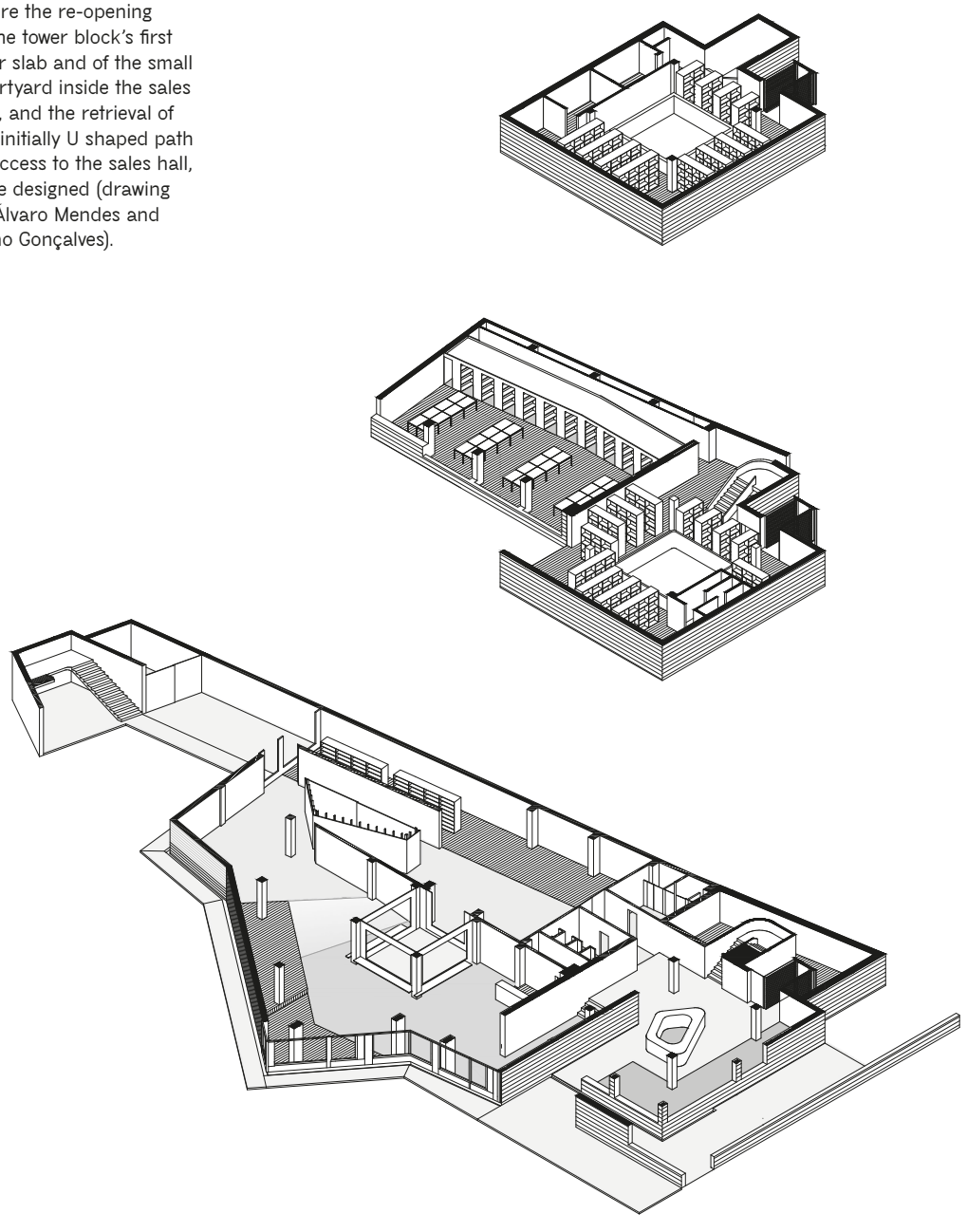
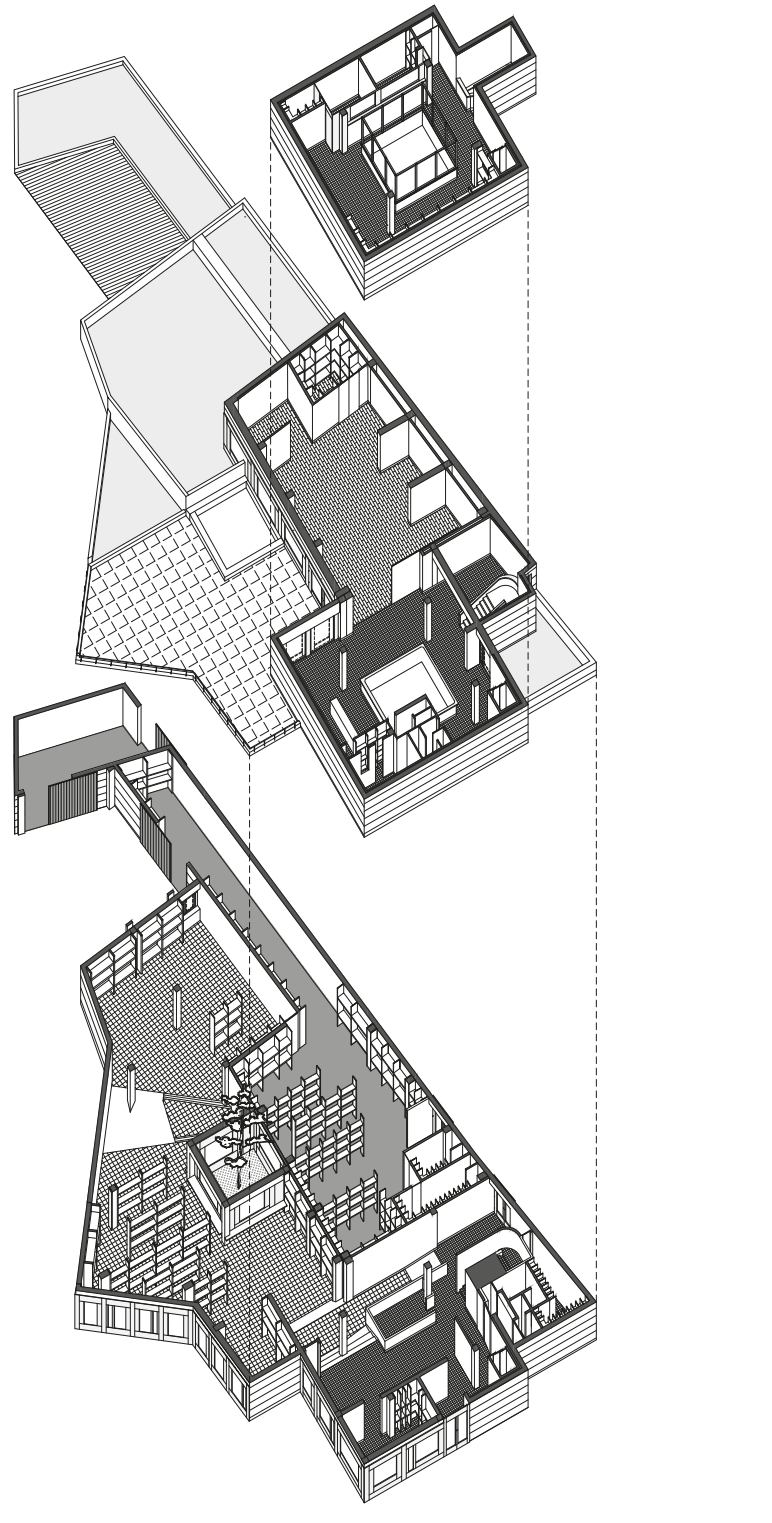


Fig. 3.8
Isometric split view of the refit of the whole Building, where just the re-opening of the tower block's first floor slab and of the small courtyard inside the sales hall was designed (drawing by Patrícia Ferreira and Inês Tavares).



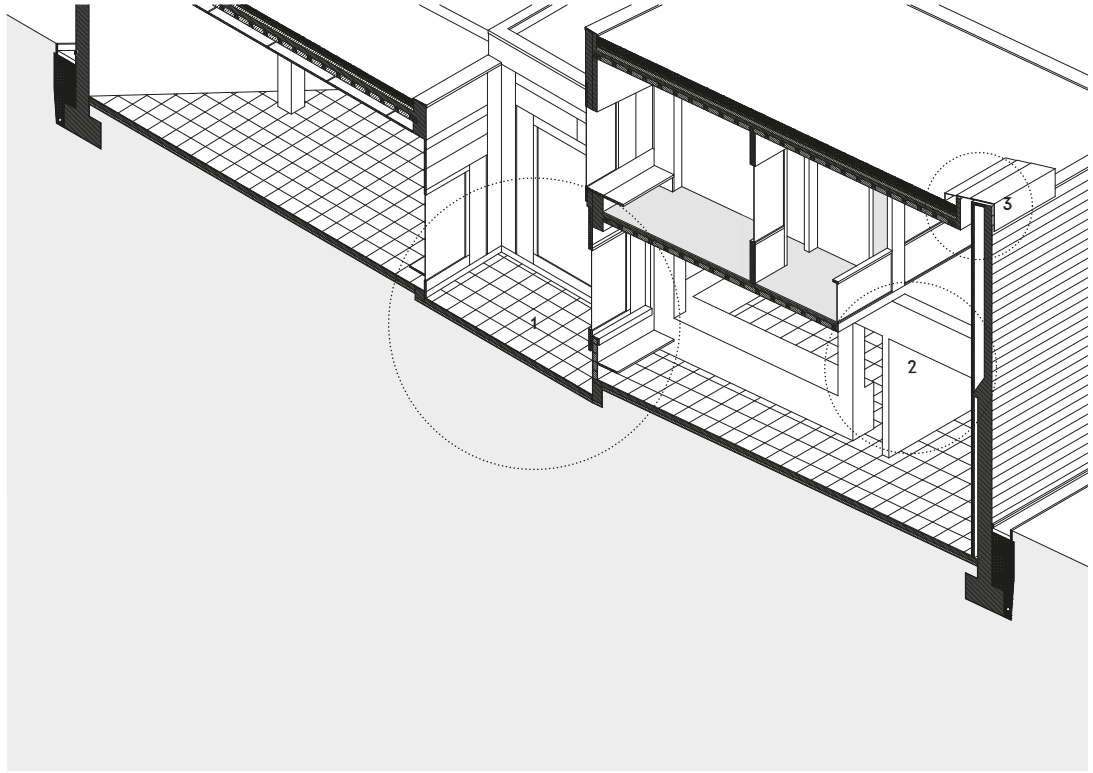
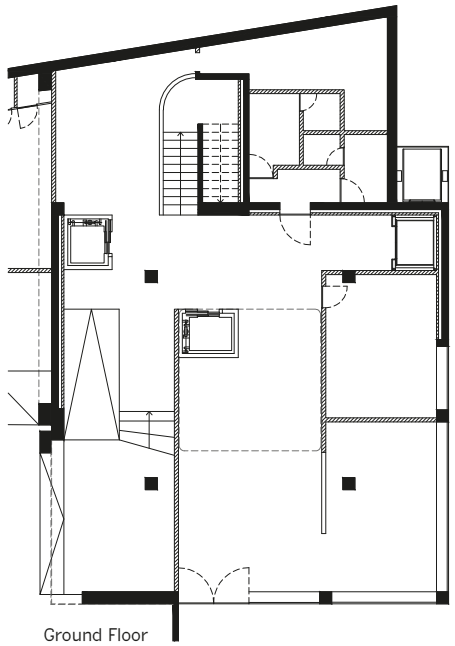
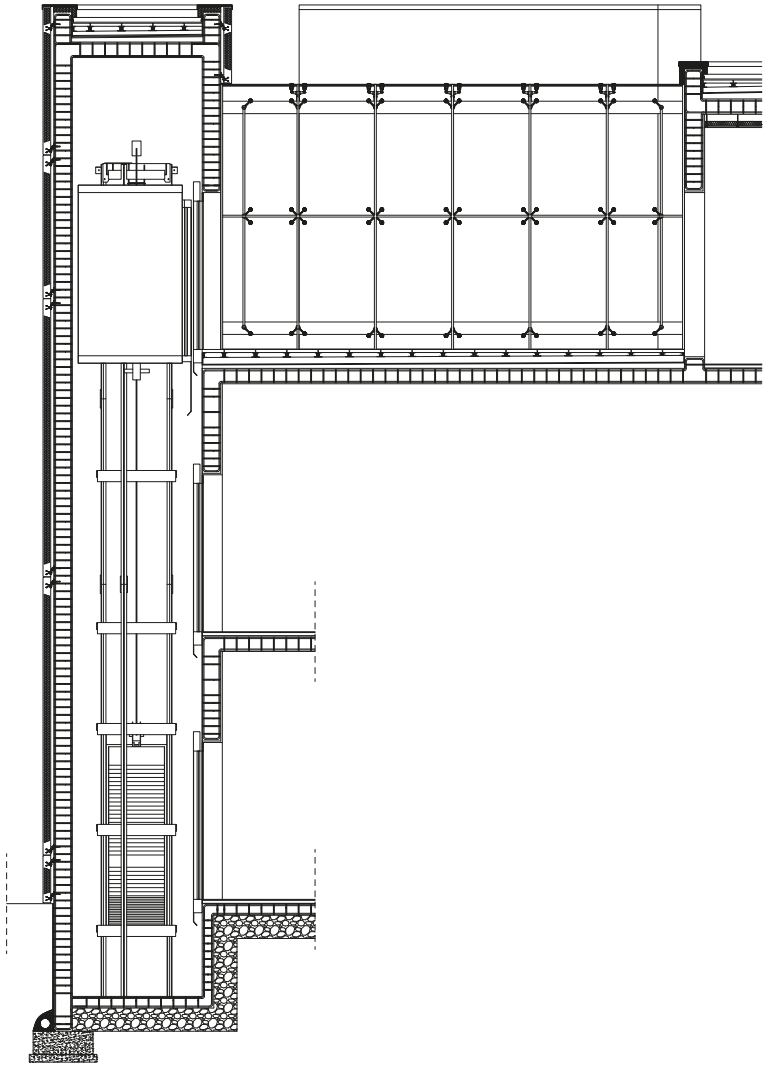


Fig. 3.9
Axonometric section of the refit of the whole Building, where the retrieval (1) of the small courtyard of the sales hall is associated with a new proposed alteration (2) concerning the cut of three openings in the first floor slab and the adaptation (3) of the existing ventilation shaft into a skylight as well (drawing by Carla Filipa Lopes and Simão Lima).

Fig. 3.10
Natural lighting simulation regarding the solution illustrated in Fig. 3.9 (drawing by Carla Filipa Lopes and Simão Lima).

Fig. 3.11
Evaluation by comparison of a different position option for the insertion of an elevator in the Building (drawing by Inês Torres and Inês de Castro)
Option 1: next to the stairs, but the access is somewhat hidden from the visitors and does not allow us to maintain the original free plan for the upper floors.
Option 2: next to the staircase, of easy access to the visitors, however the restroom on the 2nd floor, which existed in the original design, would have to be torn down.
Option 3: the elevator would run on the three floors, aligned with the staircase, of easy access at the entrance of the building. Nevertheless, the original skylight ought to be changed.
Option 4: since the staircase consists of an adjacent volume to the building, it was decided to use the same concept regarding the elevator, allowing free circulation around the three-story high ceiling.





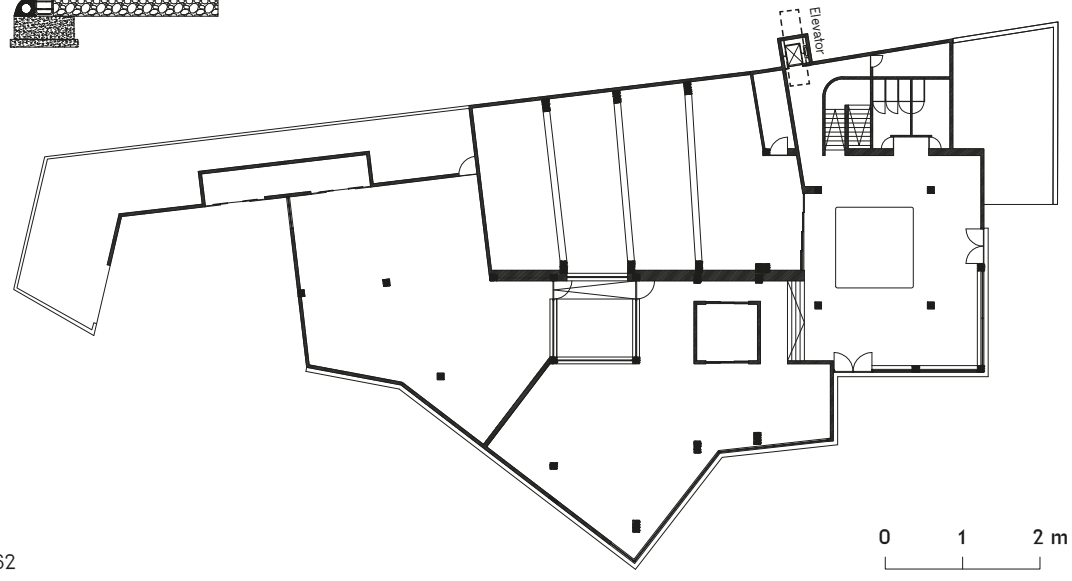


Fig. 3.12
Hypothesis for the construction of the elevator inserted in the back of the Building as illustrated in the reference plan (drawing by João Paulo Brandão). The elevator tower serves all the floors in the building and is in contact with the north façade of both first and second floors. In the third floor the façade recedes about 6 meters. This is a glass passageway 'stapled' to a metal structure

3.2 The refurbishment i.e. an attempt operated by design exploration methodology

In continuity with the afore mentioned view and intentions, we recognize that tectonics inherent to the missing apparatus of the wooden windows' framework is such a crucial issue that it deserves specific handling.

In fact, whatever the future of the Building is, the replacement of the lost apparatus will be inevitable.

Apparently, it would be possible to build an exact replica of the original lost structure made of African wood; but would it be an appropriate solution? Would it be smart to buy a currently expensive wood when it was formerly chosen also because it was affordable? Furthermore, if we take into account that we are dealing with an everyday use building, would the replicated windows correspond to up to date performance requirements in terms of thermal comfort and insulation?

Once we recognize these kinds of issues as significant, the next question will be the technical adaptations to introduce in the original model. No matter how difficult and controversial, this would be the perfect opportunity to try out a design vision uniquely guided by conservation values.

That has been the idea behind the research – by design – of a number of possible alternative solutions we developed in our semester exercise.

Accordingly, our efforts tried to include both the target resolution and its production process, which we also intend to purposely register according to the scientific principles of tangibility.

Thus, apart from our proposal for the Building, a more general contribution to conservation could also be seen in the form of the following register aimed to experiment a piece of 'research by design method'.

As a first example, there is something that could be regarded as a minimum adaptation; that is to say a hypothesis based on the revival of the configuration of Siza's original design integrated with few punctual alterations due to the need of improvement in thermal insulation.

The students who designed it, Álvaro Mendes and Nuno Gonçalves, fully re-drew (both elevation and vertical + horizontal section) the two main portions of the original framework of the windows on the south side façade, in the ground and first floors. Their proposal differed from the original one, though, due to two factors, namely for using Iroko wood instead – as affordable and efficient as the original material – and for choosing double glass, which, by the way, never implied an increase in thickness when

it comes to the framework apparatus. As for the vertical section, another slight alteration consisted in the increased distancing of the wooden framework from the concrete surface, in order to absorb (by hiding) the insertion of the wall's thermal insulation layer. Therefore that scheme could eventually be defined as strictly driven by the reconstitution of the original tectonic expression of the Building. Finally, the proposal included the possibility of using aqueous white coating paint that could help protecting the wood and ensure greater durability. Notably, that was what Álvaro Siza purposely suggested to the Cooperative's management when questioned about the difficulty of maintaining wooden windows[43] **[Figs. 3.13 to 3.16]**.

An alternative would consist of outlining a possibility of transposition of the original design concept into a solution that assembles current industrial products in a suitably managed way. Upon specific inquiry in that market sector "Secco Sistemi™ EBE ML thermal break system" was selected among the few products which might meet the project requirements, i.e. the possibility to make large windows associated with a deep enough metallic profile which allowed the installation of proper heat and sound insulating glazing, as well as different combinations of finishes. Corten-steel and wood was the chosen option, and consisted of butt-jointed wood paneling on the inside, and Corten-steel exterior profile, which allowed us to match the lines of design of the original framework with the visual presence of a rough porous surface with a warm brown color. This solution not only evoked the original material, but also identified itself as a contemporary piece of construction.

Students Silvy Dias and Diogo Araújo, who elaborated that proposal, began by preparing all different kinds of openings and then, according to the original/former geometric layout, went on designing each single window framework by combining the standardized elements of the given system. Another minor variation was the addition of some sliding (Corten-steel) plates along the wide extension of both the windows at the sales and the assembly halls, as exterior adjustable sun breaker curtains. In this case, special attention was given to the articulation of the openings' framework around the replaced courtyard inside the sales hall **[Figs. 3.17 to 3.21]**.

In order to comment the apparent contradiction, methodology-wise, represented by the staging of those two diverse alternatives, it may be useful to recall some reference reflections about how the design rationale for Modern conservation is likely to work:

"Successful projects are primarily based on making proper and responsible use of the existing qualities of a building. (...) By recognizing restrictions as challenges, the architect makes use of what is available and, in so doing, generally creates economically viable and sustainable solutions. Following these principles

43. According to the same technical report Siza delivered on July 15th, 1969, and mentioned in footnote 1 (See File nr. PT-FS-ASV-08-2-1-3-0137 in Álvaro Siza Archive/ The Serralves Foundation): *"Embora económico, o tratamento das caixilharias, com óleo de linhaça, exige a respectiva aplicação em períodos nunca superiores a um ano. Não tendo sido cumprida tal exigência a madeira aparente um processo de deterioração que não corresponde à realidade, como facilmente se constata. O estado da excelente madeira utilizada (afezélia) pode considerar-se muito bom e de modo algum exige uma substituição escusadamente onerosa. Por outro lado algumas deficiências aparentes (deslocamento de algumas peças verticais e má vedação em tafifes de fixação do cristal) não tem origem no material utilizado. Estas deficiências são facilmente resolúveis, apesar da relativa dificuldade no processo de fixação da caixilharia à padieira (quando em consola), o qual deverá neutralizar os movimentos verificados. Propõe-se, alem das medidas acima enunciadas, a pintura da caixilharia a esmalte, tratamento muito mais durável, se bem executado, e que garante melhor aspecto ao edifício, exigindo cuidados de conservação usuais".*

leads to smart designs that make optimal use of a building's properties and values. (...) In reality, however, decision-making is more complicated and this is the very reason why architectural conservation is such a complex task, particularly if the aim is to maintain, upgrade or expand the 'use value', which usually provides the economic basis for the maintenance interventions and is the driver for other investments. (..) The key question in each and every intervention decision is whether the priority lies with the preservation of the original idea, or the conservation of the original substance. This establishes a hierarchy of principles for conservation. Experience has taught us that such theoretical concepts are useful to give direction to decisions, but the practicalities are mostly more complex and therefore demand some subtler distinctions. (...) This pragmatic approach is often a necessity, because built heritage often has to be redeveloped in a field of tension involving cultural preservation, commercial interests, sustainability and ever changing rules and regulations, which calls for swift decision-making."[44]

In this sense, rather than developing single solutions, model –based design decisions may constitute an useful procedure, in fact by analyzing various solutions and identifying their pros and cons as objectively as possible, it is at least expectable that we improve our awareness about what could emerge as our (as designers) own decision.

Nevertheless it is clear that, in an indefinite situation such as that of the Cooperative of Lordelo do Ouro only an effective refurbishment – if and when it occurs – will provide the missing parameters to orient the choice between both design solutions.

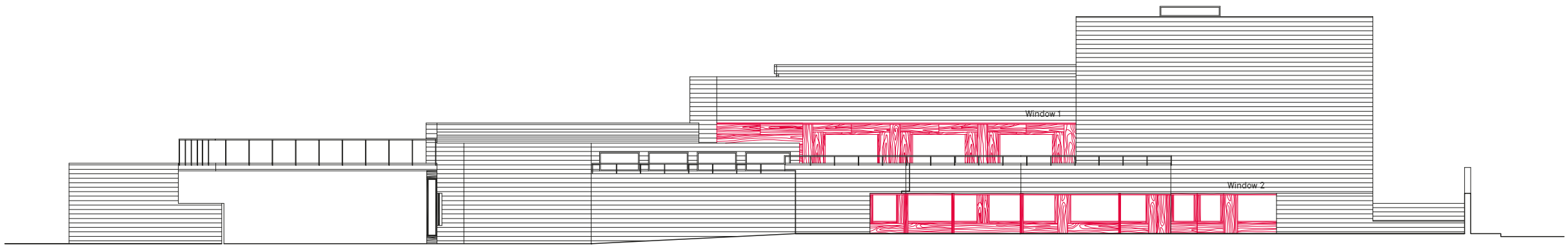
Despite being affordable, treating the framework with flaxseed oil requires that it be applied in periods not exceeding one year. Failure to do so caused an apparent deterioration of the wood's state that does not correspond to reality, as can easily be seen. One would consider that the excellent wood used (afzelia) is in very good state and definitely does not need to undergo a costly replacement. On the other hand, some obvious problems (displacement of some of the vertical parts and poor insulation of the glass fastening system) are not due to the material used. These problems are easily solved, even if the process of fastening the framework to the lintel (when cantilevered), which should neutralize any movements, is relatively complex. Besides the afore mentioned measures, we propose the use of enamel for the framework, which is far more durable, when well executed, and makes the building look better while requiring standardized conservation practices.

44. An excerpt from Wessel de Jonge, "The Role of the Architect" in M. Kuipers, W. de Jonge (2017), *Designing from Heritage – Strategies for Conservation and Conversion*, Rondeltappe-Bernoster-Kemmers Foundation, Delft, pp. 99–114.

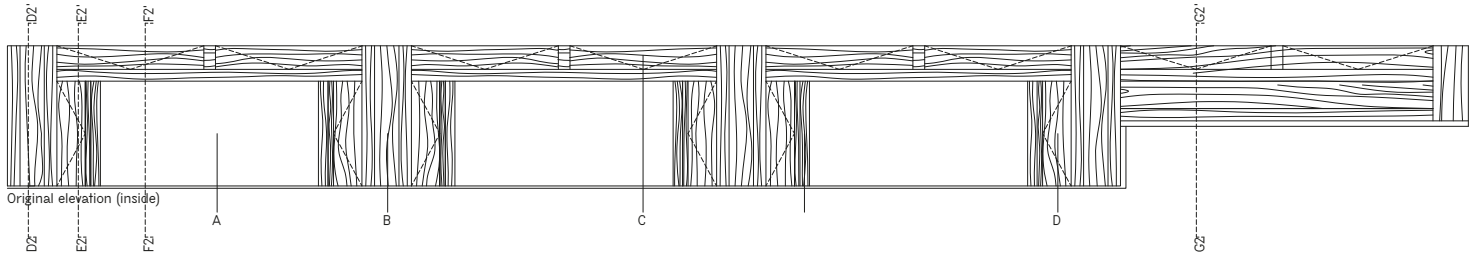
Fig. 3.13
South side elevation of the Building with the proposed insertion of windows' framework re-design according to the idea of minimum adaptation of the original ones (drawing by Álvaro Mendes and Nuno Gonçalves).

Fig. 3.14
Construction detail of window –identified as nr.1 in Fig. 3.13 – with the original and new proposed solution designed 'side-by-side' (drawing by Álvaro Mendes and Nuno Gonçalves).

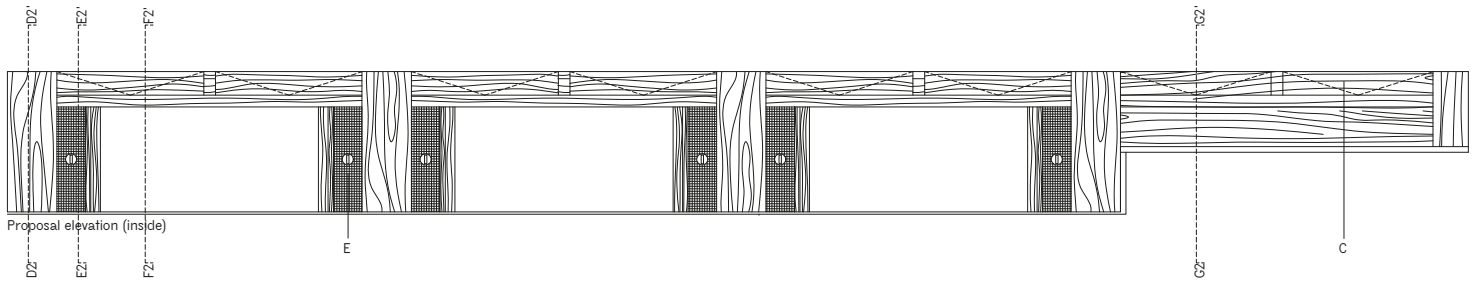
Fig. 3.15
Construction detail of window – identified as nr.2 in Fig. 3.13 – developed with the original and new proposed solution designed 'side-by-side' (drawing by Álvaro Mendes and Nuno Gonçalves).



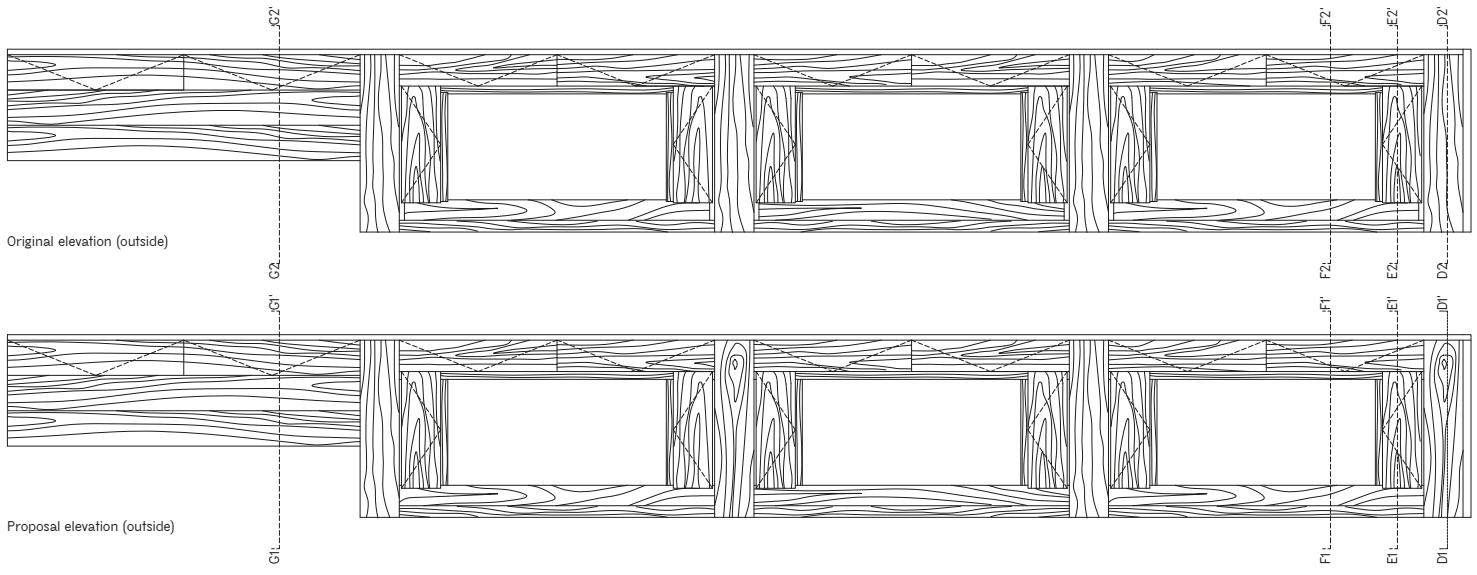
Window 1



Original elevation (inside)

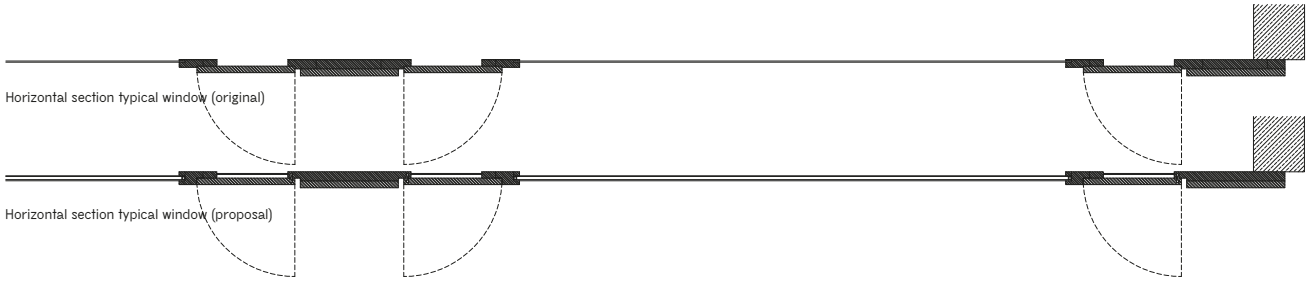


Proposal elevation (inside)



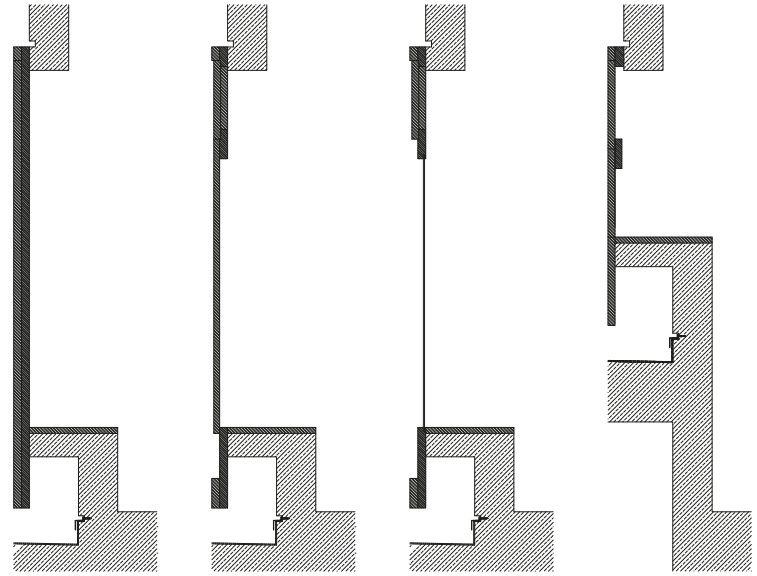
Original elevation (outside)

Proposal elevation (outside)



Horizontal section typical window (original)

Horizontal section typical window (proposal)

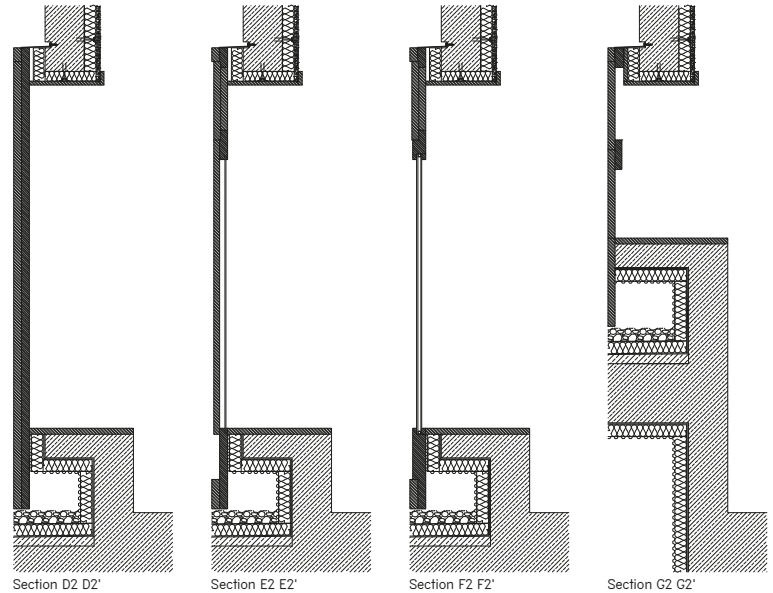


Section D1 D1'

Section E1 E1'

Section F1 F1'

Section G1 G1'



Section D2 D2'

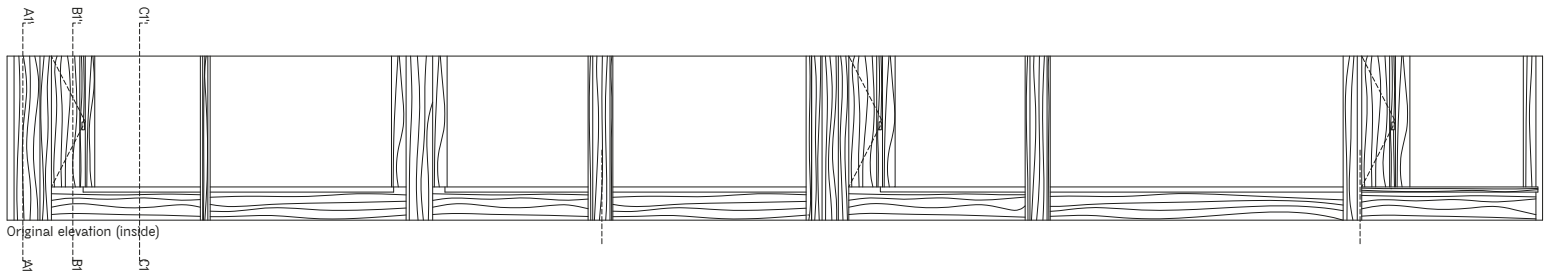
Section E2 E2'

Section F2 F2'

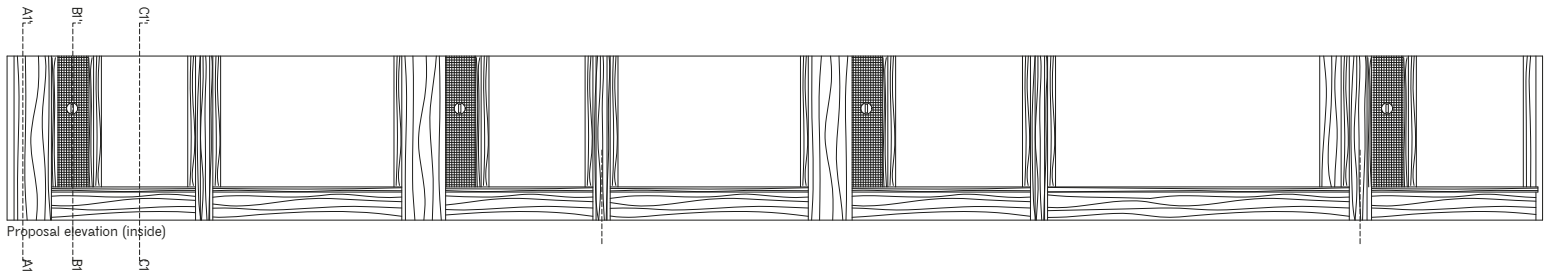
Section G2 G2'

0 0.5 1 m

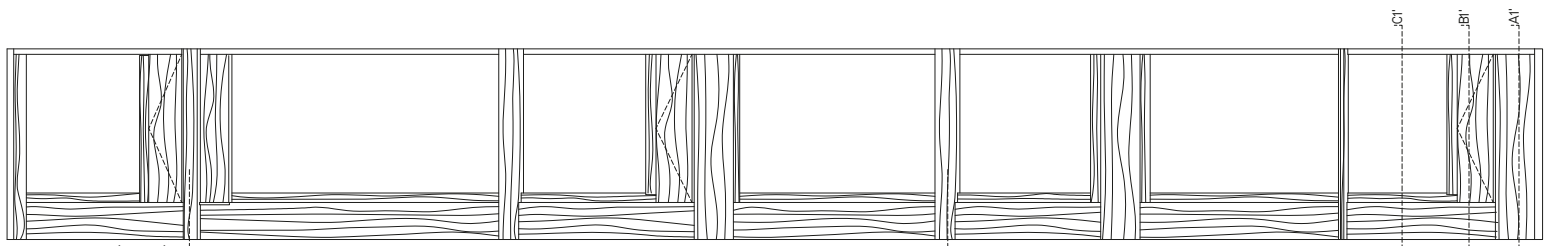
Window 2



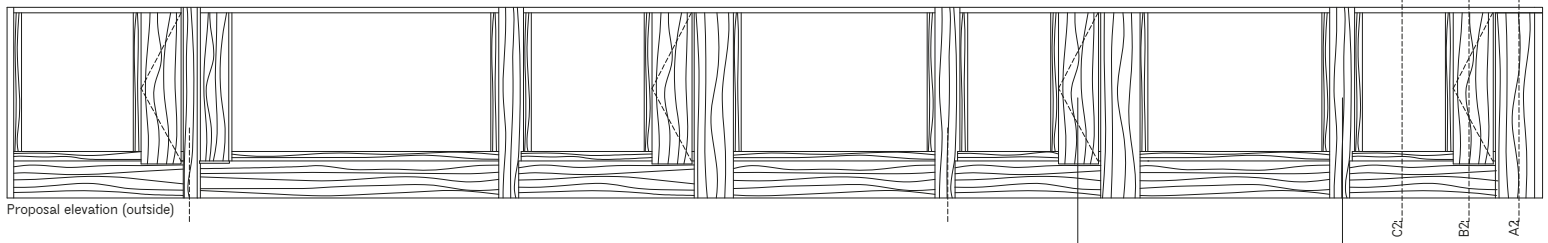
Original elevation (inside)



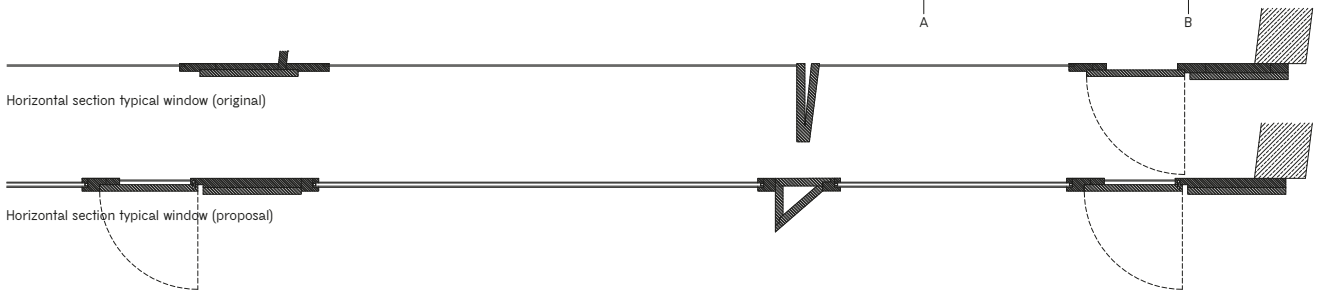
Proposal elevation (inside)



Original elevation (outside)

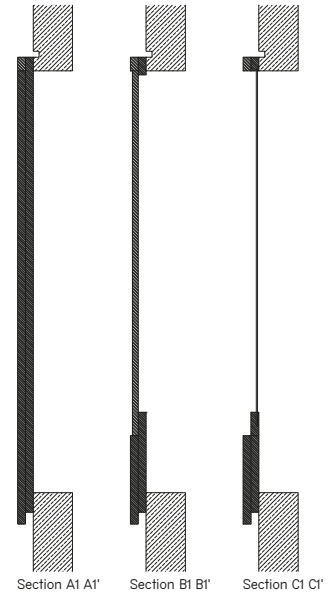


Proposal elevation (outside)

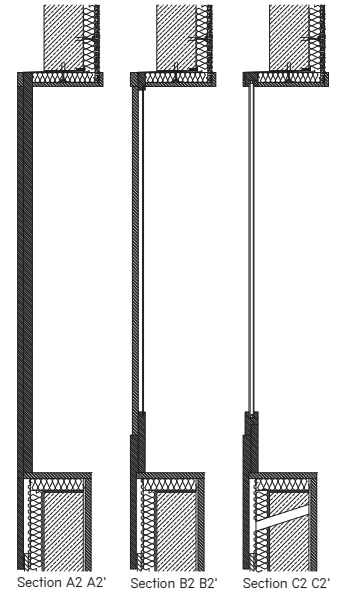


Horizontal section typical window (original)

Horizontal section typical window (proposal)



Section A1 A1' Section B1 B1' Section C1 C1'

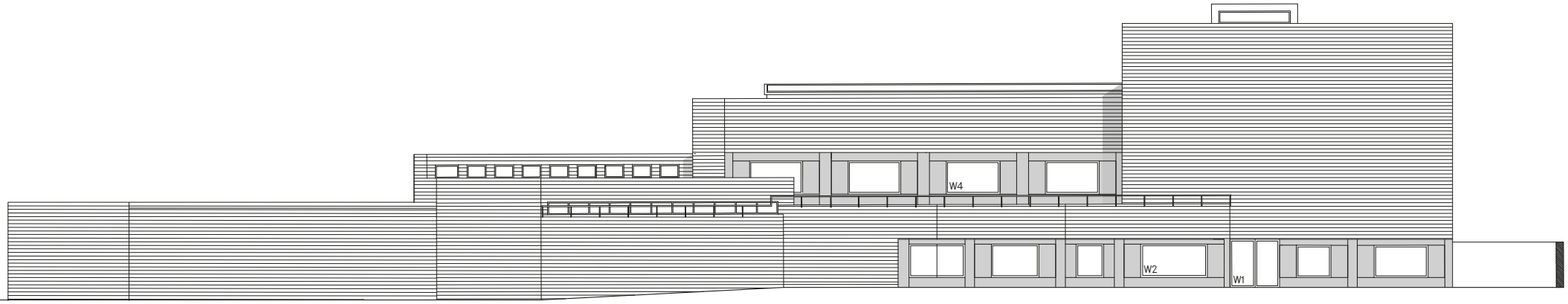


Section A2 A2' Section B2 B2' Section C2 C2'

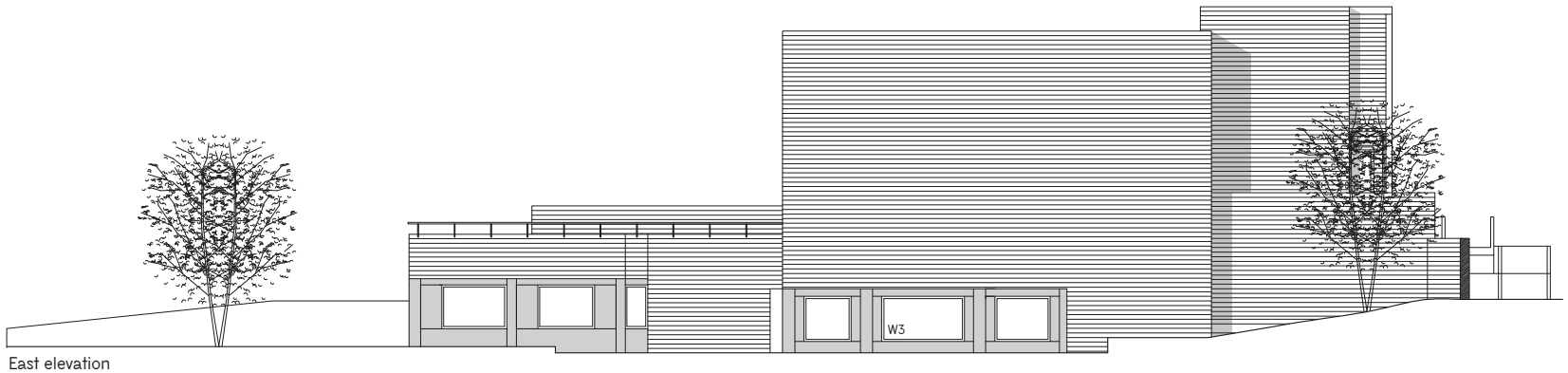
0 0.5 1 m

Fig. 3.16 and 3.17
Perspective views of material rendering of alternative paint coatings for window framing solution as in Fig. 3.13 (drawing by Álvaro Mendes and Nuno Gonçalves).

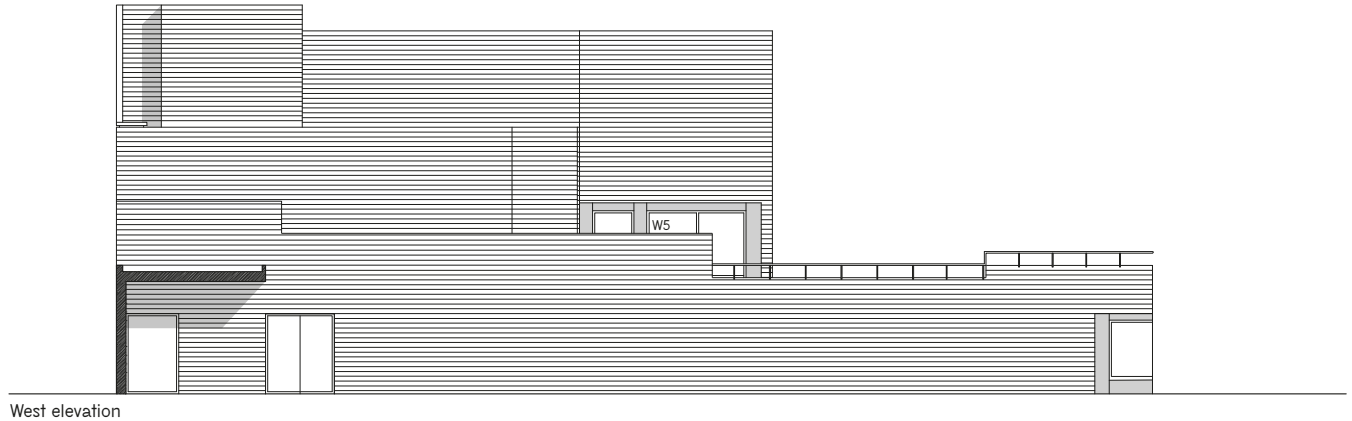
Fig. 3.18
The window-glazed sides of the Building's elevations with the proposed insertion of new window frameworks composed of Corten-steel (exterior) wood (interior) elements (drawing by Silvy Dias and Diogo Araújo).



South elevation



East elevation



West elevation

0 2 5 m

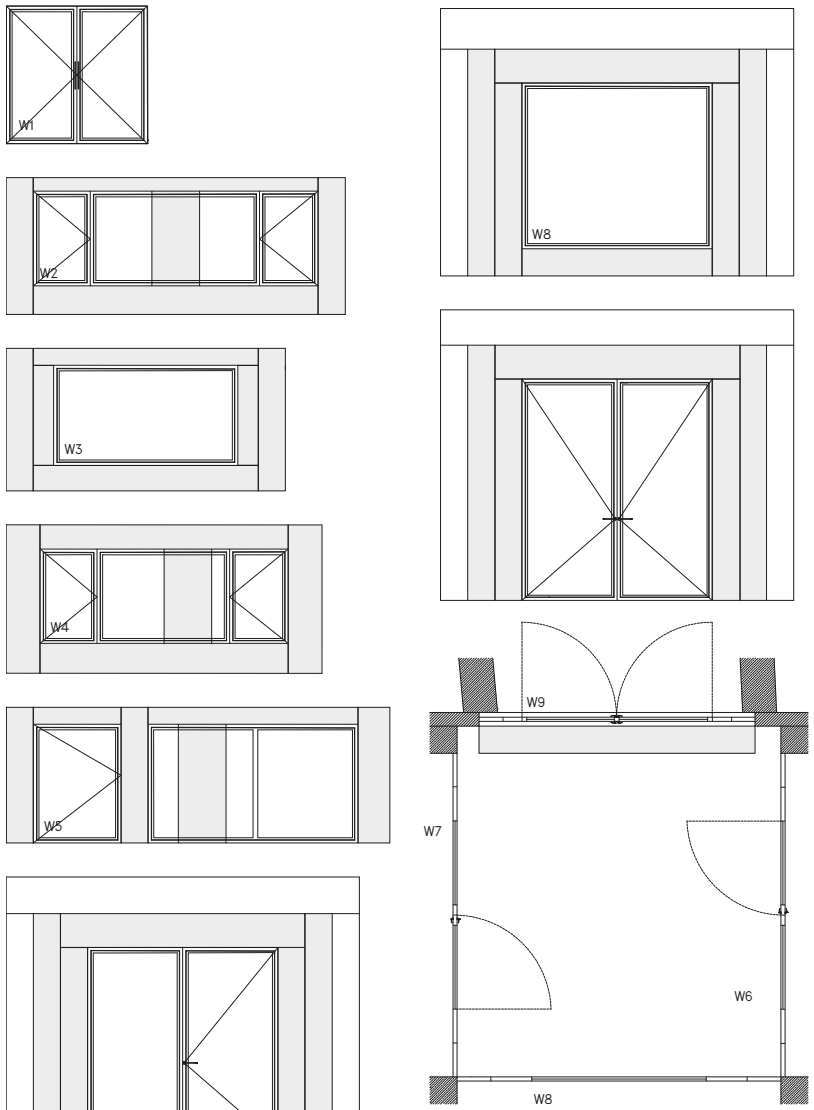
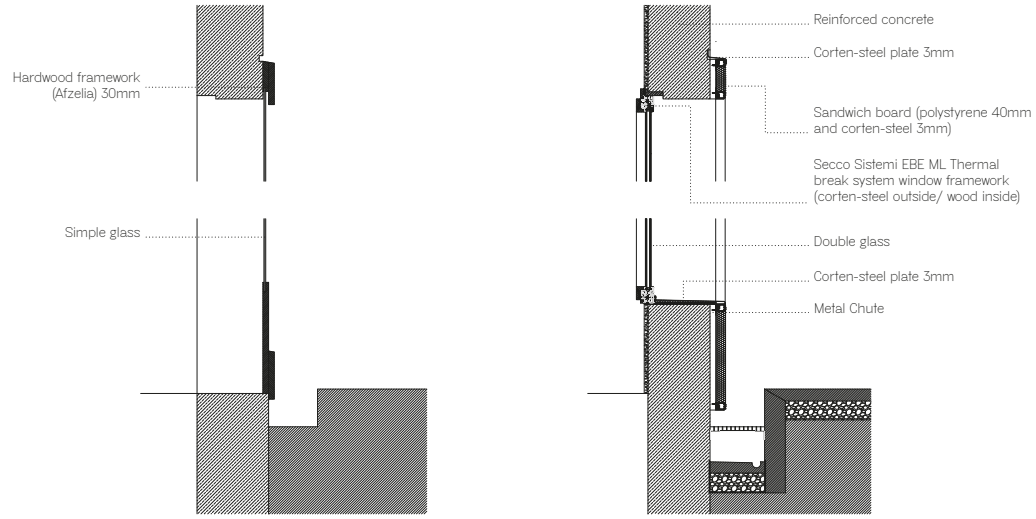


Fig. 3.19
Set of opening units' framework according to Fig. 3.17 (drawing by Silvy Dias and Diogo Araújo).

Vertical section
Original (left side) and proposed (right side)



Horizontal section
Original (upper side) and proposed (lower side)

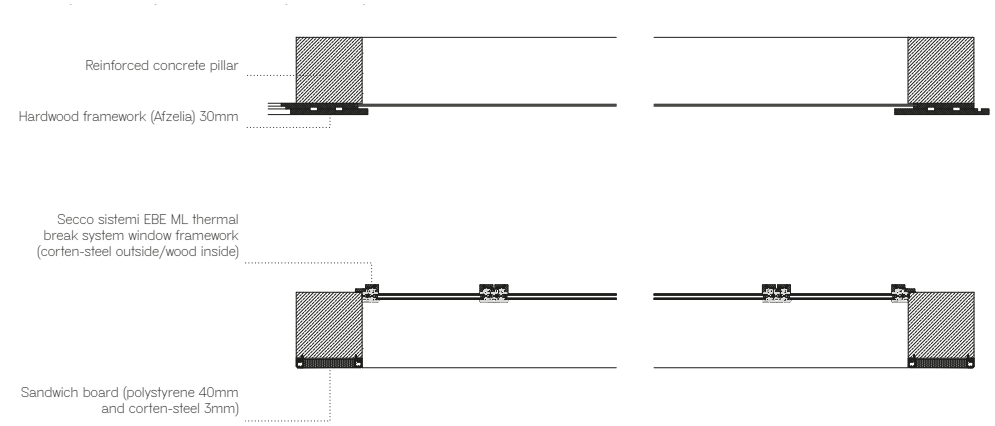


Fig. 3.20
Construction detail of a typical window according to Fig. 3.17 with the original and new proposed solution designed 'side-by-side' (drawing by Silvy Dias and Diogo Araújo).

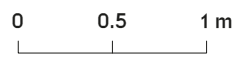


Fig. 3.21
Axonometric section – from the entrance to the sales hall – transversal to the whole Building and detail of materials' rendering, according to Fig. 3.17 (drawing by Silvy Dias and Diogo Araújo).

Caption

1. Roofing repairing also with insertion of extruded polystyrene insulation.

2. Improved (by lowering) rainwater drainage

3. Flooring; the replacement of the existing damaged (and non-original) floor, grey vinyl tiles is proposed for an area that will presumably be subjected to intense trampling.

4. Plastering; all the interior walls are to be replastered with lime mortar.

5. Furniture; a modular system of wooden chairs and tables organizes the reading points to be placed around the (restored) three story high sky-lit space at the first and second floors.

6. Ceilings; gypsum drywall plasterboards are to be applied in substitution of the original handcrafted boards made of gypsum paste encased in wood wool

7. New window system; upon specific inquiry in that market sector "Secco Sistemi™ EBE ML thermal break system" was selected among the few products which might meet the project requirements, i.e. the possibility to make large windows associated with a deep enough metallic profile which allowed the installation of proper heat and sound insulating glazing, as well as different combinations of finishes. Corten-steel and wood was the chosen option, and consisted of butt-jointed wood paneling on the inside, and Corten-steel exterior profile, which allowed us to match the lines of design of the original framework with the visual presence of a rough porous surface with a warm brown color.

8. Exposed concrete elevations to be repaired through the Grey Concrete Restoration Method (GCR – method) for restoring concrete (© CEris – Civil Engineering Research and Innovation for Sustainability of Instituto Superior Técnico of the University of Lisbon).

3.3

Schemes for repairing roofing, drainage systems and exposed concrete surfaces

The flat roofing surfaces of the Building, both the accessible and the non-accessible ones, are in need of repair. And, as described in the first chapter, consequent water infiltrations were observed in the lower volume destined to storage and food distribution, where the collapse of part of the suspended ceiling occurred. Over the years, there were only partial repairs with bitumen impregnated patches; therefore, roofing needs effective repair and this kind of intervention could potentially solve some of the other issues ailing the concrete structures.

The complete makeover of the roofing system should aim at better thermal insulation and protection of the waterproofing membrane. Again, the method should consist in taking another look at the drawings of the selected points (roof construction details) we found in the archive, followed by a systematic formulation of the same very points, according to the technical improvements required.

The following illustrations show that improvement would be expected by the introduction of an outer insulating layer and the subsequent installation of a final layer consisting of concrete tiles in the accessible areas and of gravel in non-accessible areas **[Fig. 3.22]**.

Since problems of rising damp are evident at the base of the Building along the southward elevation, we relied on the help of our colleagues engineers that integrate the group of teachers leading the Studio to diagnose situations caused by insufficient drainage; furthermore, we were able to correct lingering sanitation issues by lowering the rainwater collection system **[Fig. 3.23]**.

Due to the deteriorated condition of the inside of the Building, one of the proposals on the table was to formulate different hypotheses for the refurbishment of the false ceiling. As mentioned earlier, it was originally made of gypsum and organic fiber boards also reinforced with wooden rulers, and, in terms of technical reproducibility, repair and/or substitution of damaged areas should be made possible and, whenever affordable, also preferably substantial. As a consequence of the observation, we came to conclude that such a process would include great part of the false ceilings, which were in fact weakened or deteriorated; in terms of a less expensive alternative we considered the adoption of currently standard drywall plasterboards, which are lighter and easier to be assembled than the original boards, made of gypsum paste encased in wood wool. Nevertheless, even with this option, and the correspondent use of a standardized assemblage kit of support,

the necessary attention was given to the precise reproduction of the original design finishing features of the false ceilings, as described in the first chapter, i.e. we studied a way to adjust a customary fixing procedure necessary to achieve this final result. Such an effort involved namely maintaining the slight gap between the ceiling plan and the perimeter walls of the rooms, as well as reconstructing the original 10 cm wide separation split revealing the presence of that structural element.

Furthermore, according to this alternative it would be possible to insert additional insulation, as well as operable openings so as to easily inspect and repair any hollow spaces within the installations' cabling.

Same drywall solution was proposed as insulation layer for the Building's inside perimeter walls; and the same attention was given to the management and search for a compatible solution for each specific part of the original finishing. Notably, in case design effort failed, insulation could also be disregarded.

In fact, like many of the reference studies[45] about refurbishing Modern masterpieces have taught us, even a serious issue as improving thermal behavior cannot be considered only in absolute terms; instead, a mitigation strategy should always be tried, by attempting to recognize the rooms and activities in need of better thermal conditions, mending those rooms' insulation, and, in case the architectural solution proves to be difficult, abdicate from insulating other rooms **[Fig. 3.24]**.

Even though the above mentioned issues may seem merely technical, due to the effect such construction repairs and improvements may have on the original straight tectonic conception of the Building, it must be said that, no matter how few, at least they were addressed.[46]

In this framework and following previous deterioration survey, the repair of the exposed concrete surfaces of the elevations was dealt in a specific way; meaning that information about a plurality of available restoration techniques was provided.

Scientific literature[47] stresses that most diffused repair methods hardly meet the conservation principles for minimum intervention and maximum retention of original material. Concrete diagnosis and repair, according to customary solutions proposed by the concrete industry, result in invasive practices, in particular upon exposed concrete surfaces, where repair solutions should be evaluated not only in terms of durability and material compatibility, but also in terms of global impact namely on the texture of the elevations' surfaces.

On this matter, we found it helpful to introduce students to a contribution we received from our colleagues Eduardo S. Júlio[48] and Jónatas Valença,[49] who have been developing a tailorable procedure – 'Patch Restoration Method', which aims to encompass a whole process, from assessment to intervention, so as to find

45. See for instance W. de Jonge (2004) "Zonnestraal': Restoration of a transitory architecture. Concept, planning and realisation in the context of its authenticity" in O. Wedebrunn, (ed.) *Technology of Sensations, The Alvar Aalto Vyborg Library', Proceedings of the 7th DOCOMOMO International Technology Seminar, Vyborg, Russia (September 18–19, 2003), DOCOMOMO preservation technology dossier 7*, Copenhagen. pp. 12–33.

46. We believe it is worth noting that our purpose was mainly educational and that we were in no position to produce comprehensive and coordinated schemes for repairing solutions.

47. A. Custance-Baker, S. Macdonald, K. Normandin, G. Crevello, (2015), *Conserving Concrete Heritage: An Annotated Bibliography*, Getty Conservation Institute, Los Angeles.

48. Full professor of Structural Engineering (specialized in structural concrete) at the Civil Engineering Department of *Instituto Superior Técnico* of the University of Lisbon (IST-UL).

49. Researcher at CEris – Civil Engineering Research and Innovation for Sustainability at *Instituto Superior Técnico* of the University of Lisbon (IST-UL).

the better match between the repairing mortars and the concrete substrate, while also taking into account the effects of aging on the resulting reparation.

In short, PRM comprises the following steps: "*(1)* a detailed diagnosis has to be conducted to assess the materials' properties, design criteria, construction methods, and structural behavior; *(2)* conservation procedures should be adapted to each case; *(3)* principles of minimum intervention and compatibility should be fulfilled; *(4)* patch repairs with restoration requirements, namely by developing specific and customized repairing mortars to match the original concrete substrate (color and texture), should be performed; *(5)* a research study to define the most adequate repairing mortar should be conducted; for instance, accelerated aging tests are needed to evaluate the effect of long term exposure to the environment; *(6)* monitoring the intervention is fundamental to define and to calibrate the trend of the color evolution of mortars with time."[50]

As a result of PRM's development, especially when it comes to chromatic design and application of restoration mortars on smooth surfaces of colored concrete, the same investigation group developed and published some material about their Colored Concrete Restoration Method (CCR-method).[51] Furthermore their Grey Concrete Restoration Method (GCR-method) for restoring white and grey concrete surfaces is currently in progress[52] **[Fig. 3.25 and Fig. 3.26]**.

As teachers of architectural design for the conservation of Modern built heritage and, of course, potential users of PRM, we find points *(4)* and *(5)* above stated as particularly critical and therefore worth a closer look.

In fact, among restoration requirements we have the principle of recognizability, which entails that any part added during the intervention must be distinguishable from the original ones. And so, while technically we can reproduce the original concrete color and texture by adding the patch – so as to avoid disorder in the overall view of the work – there is still an open question concerning how to make our repair patch noticeable. Moreover, as if the question was not hard enough, the issue of patina also comes into play. This is one of the aspects which characterizes Art's existence in time. The patina corresponds to the authentic lifetime of a heritage piece of art and therefore cannot be considered separately.

Like any other historical architecture, that of the twentieth century also has a double dimension, namely historical and aesthetic; accordingly, it is necessary that restoring operations ensure, more than its visual fruition, an understanding of it as an artefact of a past time. And the preservation of both dimensions implies that the so-called patina should also be taken into account.

In our specific case, for instance, erosion due to brackish wind on the Building's elevations could not be considered as mere

50. J. Valença, C. Almeida, J. Botas, E. N. Júlio (2015), "Patch Restoration Method: A new concept for concrete heritage" in *Construction and Building Materials,* n. 101 (2015), pp. 643–651.

51. C. Almeida, J. Valença, E. N. Júlio (2019), "Colored concrete restoration method: For chromatic design and application of restoration mortars on smooth surfaces of colored concrete" in *Structural Concrete*, n. 20 (2019/20), pp. 1391–1401.

52. J. Miranda, J. Valença, E. Júlio, (2020), "*Método para definição cromática e aplicação de argamassas de restauro em superfícies de betão branco e cinzento*" in *Construção Magazine* N.º96 – Março/ Abril: Publindustria Porto, pp. 16–21.

53. To use a comparable reference, at least in terms of conceptual merit, within the relatively short register of restoration experiences of masterpieces of Modern Architecture, it might be helpful to recall the solution elaborated for the reconstruction of the missing parts of the curtain wall in Zonnestraal Sanatorium's main pavilion in Hilversum, originally designed and built by J. Duiker. Detailed description of how that solution worked out by Wessel de Jonge and Hubert Jan Henket can be found in W. de Jonge, "*Una nuova vita per i monumenti moderni*" in M.C. Torricelli, A. Lauria, V. Riso eds. (2008), *Ricerca Tecnologia Architettura – un diario a più voci*, Edizioni Ets, Pisa, p. 197.

decay of exposed concrete surfaces; instead, it should be perceived as lifetime burden, i.e. a surplus instead of a caries.

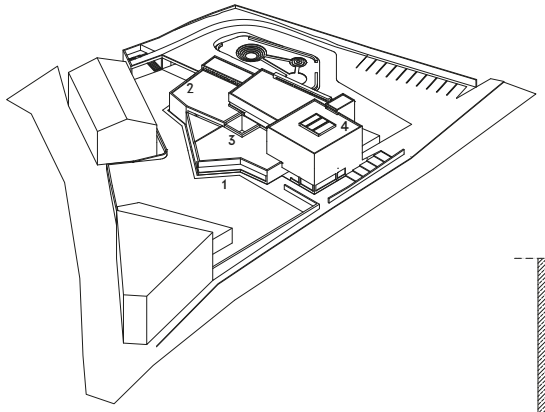
We are convinced that those fine questions could not be solved from a purely theoretical point of view; that is to say that only the application of the best possible solution in the material body of the real case study may lead to the biasing of all the parameters of use of the new concrete repair method.[53]

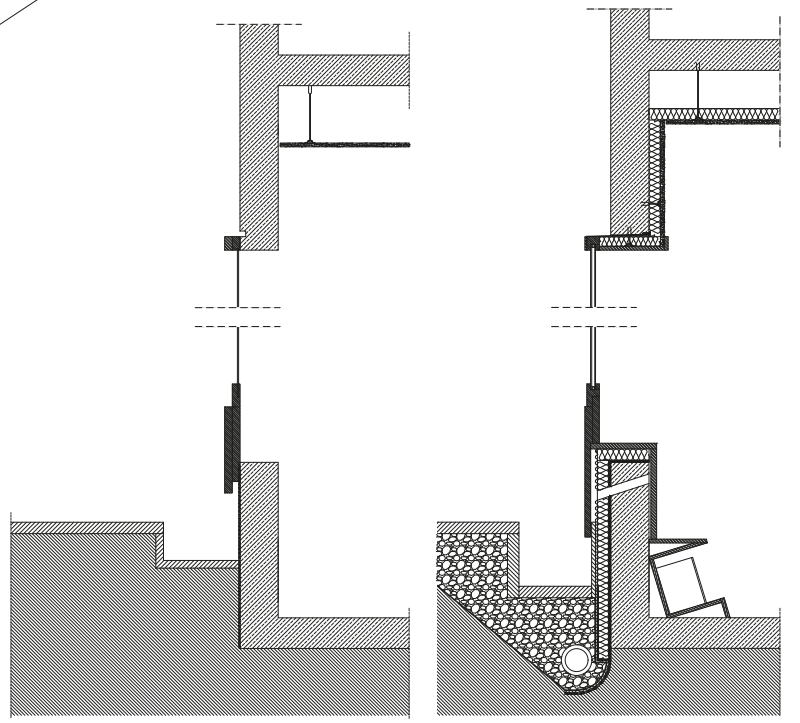
PRM has already been applied to Calouste Gulbenkian Foundation's headquarters[54] in Lisbon. Consequently, colleagues of ours reported that the case-study "allowed to identify important parameters for the successful onsite implementation of the PRM, namely: *(1)* the accurate spatial quantification of both colour and texture; *(2)* the characterisation of solar orientation; and *(3)* the correlation between the latter and the human eye perception of the former two parameters. Based on these, restoration mortars can be designed and the surface finishing prescribed. Moreover, the environmental exposure conditions should be characterised, to define adequate accelerated aging tests and, with these, the long term behaviour of patch restorations can be estimated".[55]

So, in conclusion, we can only hope that Lordelo do Ouro Cooperative Building is considered as a future PRM/ GCR-method case study and contributes to the search for a suitable conservation practice for heritage concrete.

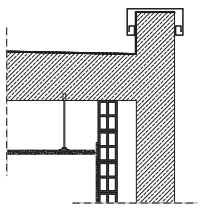
54. That group of buildings is a remarkable example of 'Concrete Heritage' in Portugal and was the first Twentieth Century building to be classified by the Portuguese Institute of Architectural Heritage (IPPAR) as National Monument.

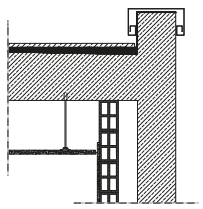
55. J. Valença, C. Almeida, J. Botas, E. N. Júlio *op. cit.*

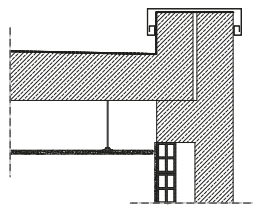


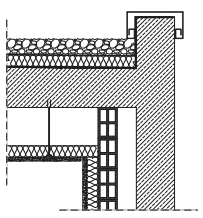

Typical detail 1 original

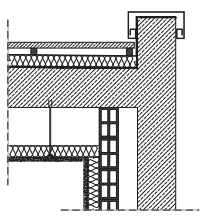
Typical detail 1 proposal

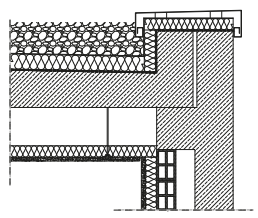

Typical detail 2 original


Typical detail 3 original


Typical detail 4 original


Typical detail 2 proposal

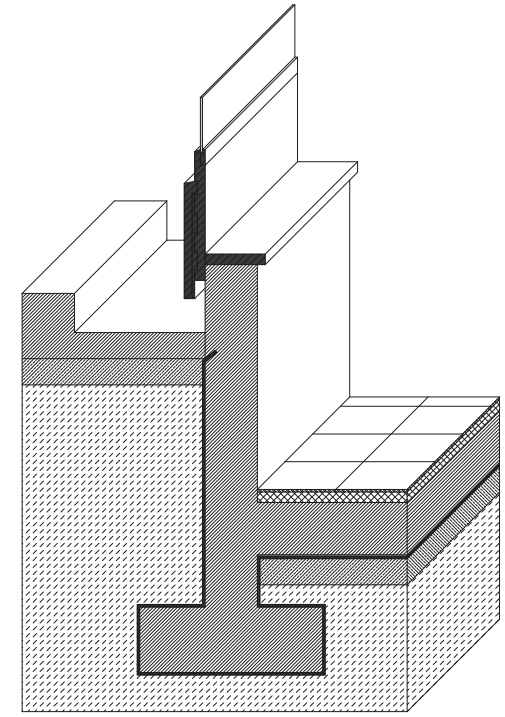

Typical detail 3 proposal

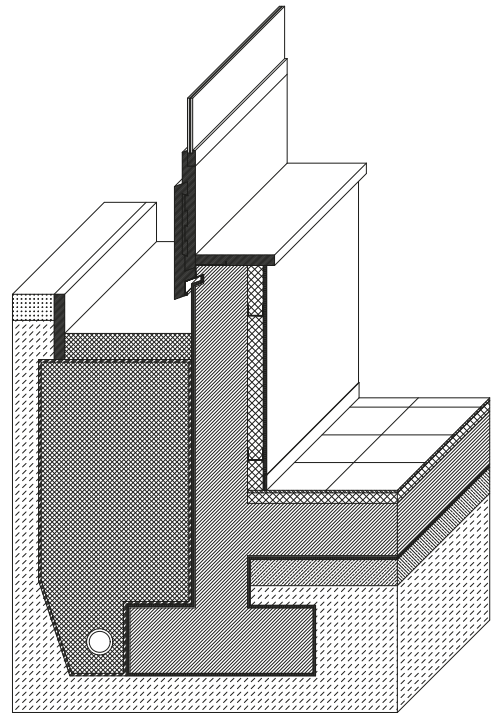

Typical detail 4 proposal

0 20 50 cm

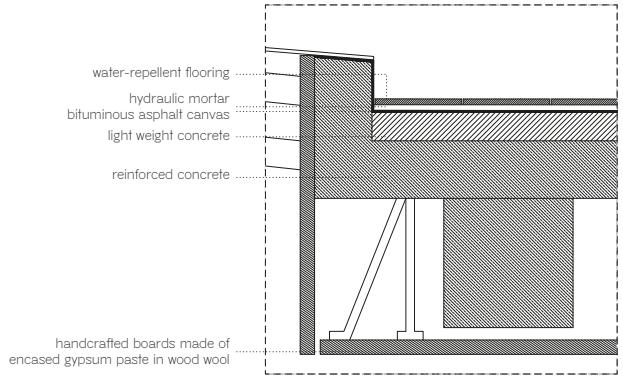
Fig. 3.22
Selected points' detailed construction sections of the Building's roof with the original solutions and improvement proposals drawn 'side-by-side' (drawing by Álvaro Mendes and Nuno Gonçalves).

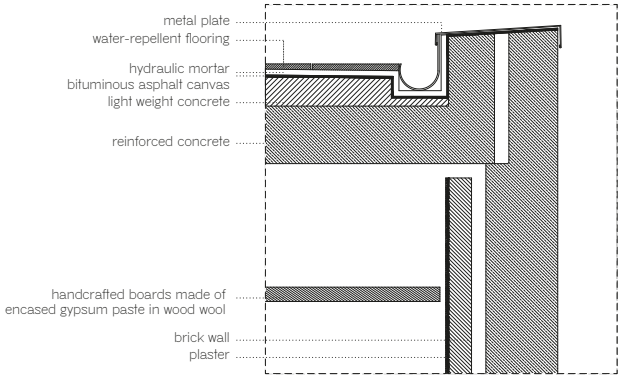
Fig. 3.23
Axonometric detailed construction sections at the base of the Building with the original solutions and proposal for improved rainwater drainage drawn 'side-by-side' (drawing by Carla Filipa Lopes and Simão Lima).

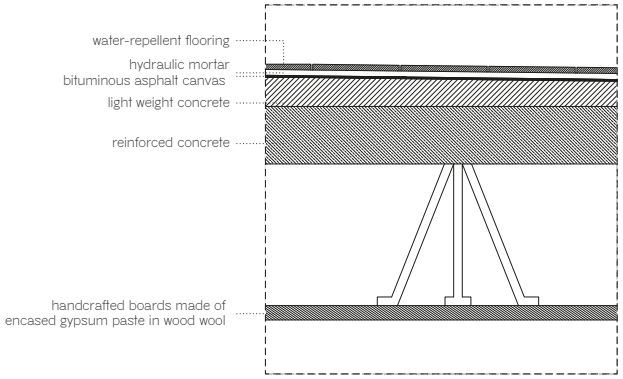


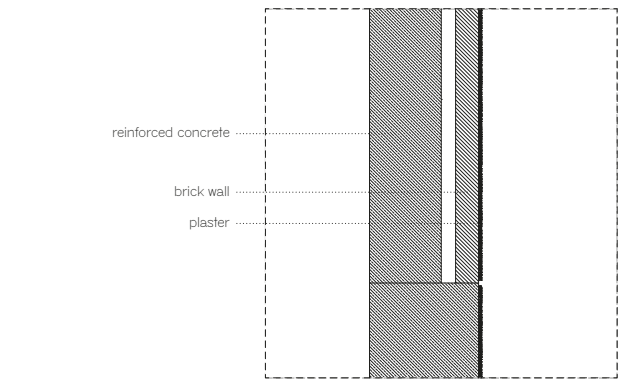


0 20 50 cm

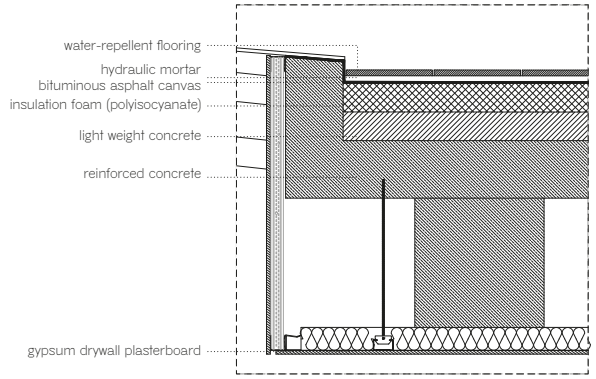


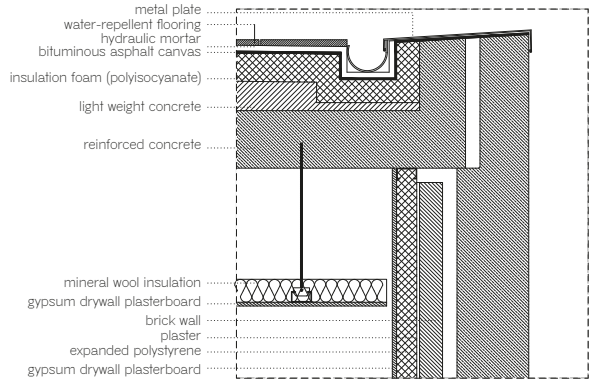


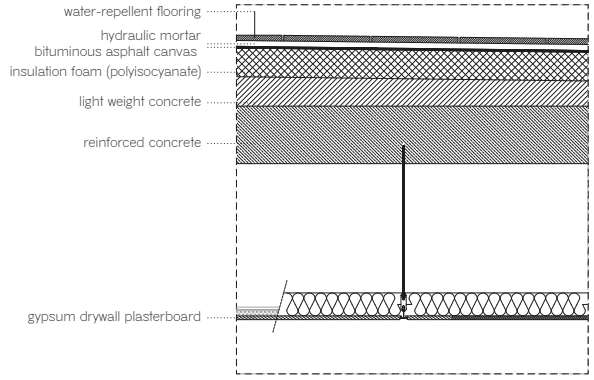


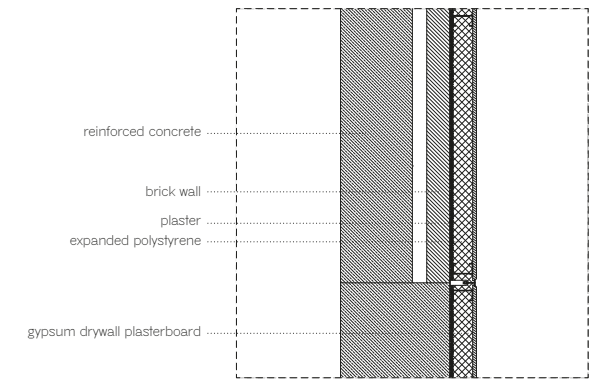


Original

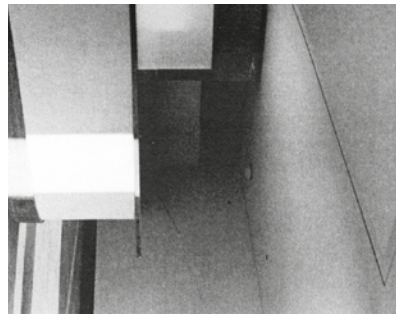


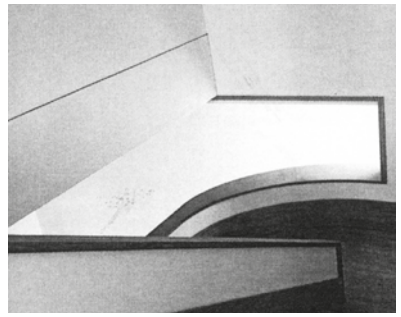






Proposal





0 20 50 cm

Fig. 3.24
Selected points' detailed construction sections of the false ceilings of the Building's perimeter walls with the original solutions and the low cost improvement proposal drawn 'side-by-side' (drawing by Inês Torres and Inês de Castro with historical photos 1960–63 Álvaro Siza Archive © Serralves Foundation).

Fig. 3.25
Samples of laboratorial tests to calibrate and validate Grey Concrete Restoration Method (GCR – method) for restoring white and grey concrete surfaces, performed on a specimen here pictured before (above) and after (below) repair simulation (© CEris – Civil Engineering Research and Innovation for Sustainability of Instituto Superior Técnico of the University of Lisbon.

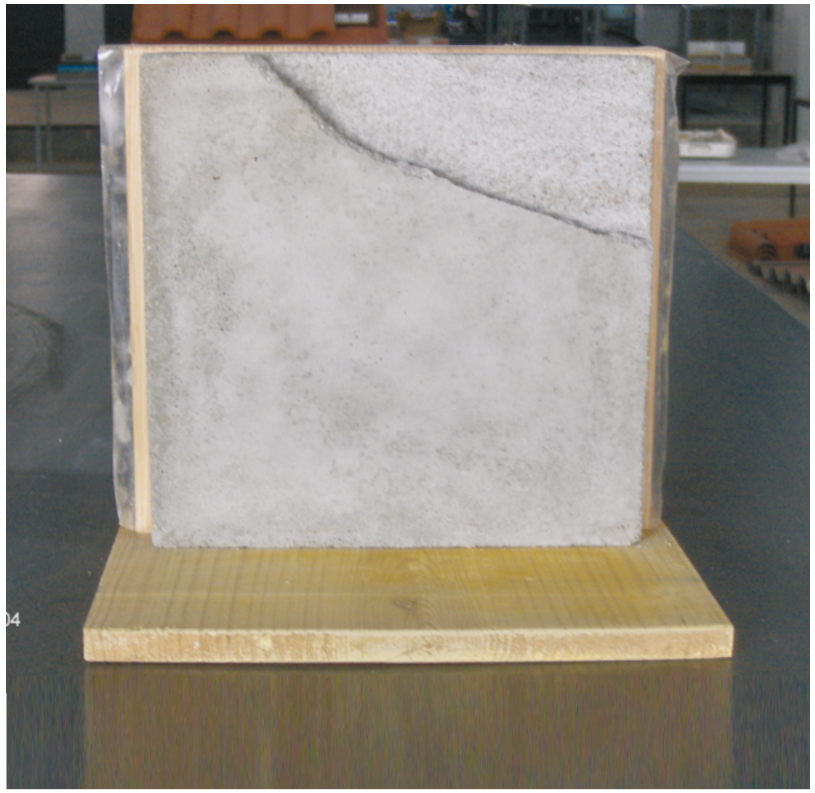


Fig. 3.26
Different shades of gray repair mortar samples to be used as matching palette according to Grey Concrete Restoration Method (GCR-method) (© CEris – Civil Engineering Research and Innovation for Sustainability of Instituto Superior Técnico of the University of Lisbon.

Appendix

Notes about Drawing as an Interpretative Means of Modern Builtform and about Mapping the Alterations of its Materials

The systematic description and diagnosis of defects in buildings constructed with the so-called modern materials – iron, concrete and glass – is a key aspect that cannot be separated from the historical and critical interpretation essential for devising a coherent extension of the buildings' service life (e.g. depending on the definition of an appropriate strategy for conservation and/or restoration that should respect the subject of the intervention).

Over the last twenty years, with the constant growing number of modern conservation projects, a few improved technical solutions used to repair modern building materials have been tested, and a good amount of literature has been correspondently published. Those studies have necessarily been developed according to the specific nature of each single material and its processing practices; but addressing every physical limb of the body of a building in an integrated way is another part of the repair exercise. That is usually tackled through the synthetic assessment of each conservator on the given intervention field. Similarly, outstanding refurbishment case studies such as those of some iconic works of the 'heroic period' of the Modern Movement have been mainly reported and divulged without the exact graphic register of the alteration and deterioration phenomena, even though one may eventually get a comprehensive written evaluation through the concluding global diagnosis.

The ultimate goal of the present reflective notes is to focus on graphic techniques for synthetizing surveys' results on building problems and ways of organizing related information into precise documents, which could allow us to maintain a constant insight overview of the whole body of the building.

What is here implicitly intended is that the graphic register of material construction problems becomes of the utmost importance for their better understanding, and subsequently a proper approach to solving them. The unique knowledge of each conservator remains, of course, fundamental. Nonetheless, we believe that by choosing an interdisciplinary approach, the exploration of further possibilities of graphically setting up all the information about those problems could result in a specific working paradigm.

Usually, survey practices on buildings' condition produce analytic/two-dimensional drawings, in which deterioration issues are mapped and spotted in their exact areas;[56] while the task of globally interpreting the interrelation between horizontal and vertical planes is left to the ability of the surveyor. Again, very experienced conservators may not need any methodological improvement in this sense, but on the other hand it is presumable that students and even average professionals could benefit from some propositions aimed to produce an integrated appreciation of deterioration and alteration data. Synthetic/three-dimensional digital models to be used as a comprehensive mapping base of single spots of deterioration could be an alternative; but this is a path which is not automatic and requires some specific study too.

56. A very good example of this kind of canonical (extensively analytic) work regarding a recent study about a Modern masterpiece of Architecture, for instance, can be found in: M. P. Bogarino, N. Bazzoli, D. Del Curto, M. Mazzolani, A. Sansonetti, A. Troisi (2018), *Giancarlo De Carlo "Collegi" in Urbino Conservation Plan – Part III: Materials and features of Modern architecture: identifying and analysing the state of repair and experimentation during restoration,* published by Università degli Studi di Urbino Carlo Bo with the assistance of the Getty Foundation as a part of its Keeping It Modern initiative, pp. 175–253.

In addition, that should not be the only path to be explored while other systems of interrelated views among construction elements, their organization and their composing materials are systematized.

As a general remark, it should be made clear that we have never had nor have we the intention of inventing any new graphic forms of expression outside the norm; instead, we are convinced it would be useful to explore a way to organize surveys' layout formats that integrates different sources of graphic information (i.e. plans, sections, diagrams, photos, charts, etc.) which could clearly inform us of any occurring phenomena concerning the whole of the building to be studied.

Accordingly, what follows is a reasoned sequence of considerations about previous experiments we ran during our own doctoral[57] and scholar[58] investigation, and posteriorly during research supervision work[59] developed within Master and Doctoral programs at the School of Architecture of the University of Minho (EAUM).

Then, in recognition of such experiments, a variety of possibilities to achieve a mock-up observation of the construction problems (which are usually only glimpsed in a sequence of detailed representations) could implicitly be outlined, so as to support a more reflective comprehension of the body of the built object.

Stepping back to a less bibliographic review, we should bear in mind that drawings, as interpretative means of the built-form, have a consistent – and specifically Modern – tradition. Some well-known personalities such as Hilberseimer, Gropius, Sartoris, and more recently Stirling (with his typical worm's-eye-views), celebrated the axonometric projection as the operative tool truly adherent to the specificity of the trade, as it privileges the moment of production of architecture; while, in comparison, (as current virtual renders do) perspective projection, due to its persuading power, is a privileged means of disseminating architecture. Among the various types of axonometric view, the architects of the Modern Movement preferably used the so-called 'military axonometric projection'; it maintains the forms (angles + dimensions) by laying on the horizontal plan, turning out to be the simplest to execute, as well as the epitome of that sense of geometric integrity, which became a constant figure of the epoch. At the end of the so-called 'heroic period', which almost coincided with the beginning of the war, Alfred Roth published his famous book *The New Architecture – La Nouvelle Architecture – Die Neue Architektur*. Aiming to supply the wide range of experiences inspired by the idea of new architecture with documentary evidence, he presented twenty works of corresponding different authors. Those works were carefully analyzed through re-drawing, made especially for the occasion with a homogeneous graphic treatment, of the plans, sections, elevations and details of each building from the setting up to the construction method. In one particular case, the House in Les Mathes (Charente-Maritime, La Palmyre-Les Mathes, Le Corbusier, 1935), Roth used an axonometric view to represent the integrated juxtaposition,

57. Vincenzo Riso, Ph.D in Technology of Architecture at the *Facoltà di Architettura Università degli Studi di Firenze* discussed April 21st 2006 with the research thesis "Technology and Place in the Experience of Modern Architecture: The relationship between tectonic and topographical values in some of the Twentieth century built-forms as an interpretative hypothesis towards their cultural and material recover" supervisor Prof. Maria Chiara Torricelli, co-supervisor Prof. Kenneth Frampton

58. See Vincenzo Riso, "Re-drawing operations: methodology questions and results", in Tostões, Ana (editor), *Modern Architecture in Africa: Angola and Mozambique*, ICIST/ Tecnico, Lisbon 2014, pp. 18–23.

59. Carlos Maia Ph.D. in Architecture (specialization in Construction and Technology) at the School of Architecture of University of Minho discussed November 14th 2018 with the research thesis "The built idea: conservation hypothesis for the Penthouse Soares & Irmão building. Experimentation of methods and practices about Modern Architecture preservation" supervisor Prof. Vincenzo Riso, co-supervisor Prof. Paulo Cruz.
Rasha Askar Ms.C. in Architecture at the School of Architecture of University of Minho discussed March 21st 2018 with the research thesis "Preliminary approach towards the renewal of Parnaso building (José

Carlos Loureiro, Porto, 1954–57)" supervisor Prof. Vincenzo Riso.
Rogério Gomes Ph.D. in Architecture (specialization in Construction and Technology) at the School of Architecture of University of Minho discussed July 26th 2017 with the research thesis "Portuguese Modern in its Tectonic Expression. Construction anatomy applied to single-family housing in Portugal, 1948–1955" supervisor Prof. Vincenzo Riso.
Joana Salgueiro Meireles, Ms.C. in Architecture at the School of Architecture of University of Minho discussed March 23rd 2016 with the research thesis "Nadir Afonso bread factory in Vila Real: a case study in the reuse of Modern Movement legacy", supervisor Prof. Elisiário Miranda, co-supervisor Prof. Vincenzo Riso.
Note: those research works are available at https://repositorium.sdum. uminho.pt/

60. A. Roth (1939), *The New Architecture - La Nouvelle Architecture - Die Neue Architektur,* Erlenbach, Zurich, p. 21.

61. E. R. Ford (1990), *The Details of Modern Architecture*. MIT Press, Cambridge (Massachusetts) and London; E. R. Ford (1996), *The Details of Modern Architecture. Volume 2: 1928 to 1988*. MIT Press, Cambridge (Massachusetts) and London.

which constitutes the distinctive character of the work, with stone masonry parts and wooden frames.[60] After a very long period, at least when it comes to relevant publications, axonometric drawing was recovered in the nineties by Edward R. Ford in the course of his vast studies devoted to the details of Modern Architecture.[61] In this work, the axonometric re-drawing of the original working drawings is methodologically assumed as necessary to collect and synthesize the information spread throughout various documents, often neither easily accessible nor technically reproducible, and to present construction and appearance simultaneously in single cut-away views.[62]

Those fundamental experiences and further willingness to show and demonstrate how construction can be rooted in its context are invaluable for our research and axonometric drawings should not be limited –we believe- to detail; instead, they always start by observing the building as a whole, to progressively reach the construction level through intermediate steps, in which both the recognition of the single part in comparison with the whole and the full description of detail are present. Thus, in continuity with such a tradition we have been developing a selective graphic work description, whose goal is to understand the significant complexity of the built form, also by paying due attention to the materiality of the construction. Our dissertation *Technology and place in the experience of modern architecture: three-parts essay through the analysis of significant case studies in twentieth century architecture*,[63] could be mentioned as a comprehensive result of this phase of research.

Our above mentioned EAUM based researches deal with the initial works of the Modern Movement in Portugal, in whose process of design we observed that drawing was the practice privileged by pioneer architects in those days to think and explain the construction of the 'New Architecture' to the craftsmen; that is to say, how to produce modern building solutions by adapting the locally available means and contemporary techniques,[64] which were in fact more traditional than modern. In this sense, we were able to recognize a syntonic context ideal for experimenting re-drawing interpretations of technologies and materials (i.e. some three-dimensional constructive analysis) that could help us get a better understanding of the whole building design.

Correspondent guidelines for that re-drawing process were formulated as follows:

> *"In each case study, the re-drawing operation produced plans, sections, elevations, digital 3D models and a number of axonometric views aimed to illustrate the anatomy of the construction. Those elements enable us to recognize the single parts and to connect them as a whole, so as the builtform could be understood beyond the reductive concept of abstract form, as a structure that absorbs and embodies the building materials. Re-drawing, when approached in the first person, resembles/comes close*

to the author's original project design process, in analogue terms. On a more general plan, the same process raises awareness of the importance of material and constructive reality in architecture, which in turn find its expression in the so-called tectonics.

The analytic re-drawing of each work (case study) is in practice developed as follows: firstly by consulting, gathering, examining technical and also registry original documentation (drawings of plans, sections, elevations and construction details, plan of structures, project specifications, descriptive texts). Then by distilling all the recognizable information in the archive photos (even though these data are rarely available in full). In a second phase, doubts and corrections can be addressed mainly during a visit to the building, when photography, surveying, measuring, and close observation are the sources of complementary evidence to existing records. Often, direct observations reveal themselves useful, when comparing to different sourced information about the same elements, to better understand or even correct previous evaluations. Only after finishing gathering and examining all available documentation (old and new), would it be possible to begin the re-drawing operation (third phase), which might require specific additional inquiry for specific information. At this point, a careful and prolonged process of re-drawing plans, sections, leads to the parallel elaboration of axonometric views, in which the relationship between elements of the construction and characteristics of the space can be highlighted. Those axonometric views ultimately contain a synthesis of all the information previously obtained from the consulted documents, which are also continuously revisited in our new drawings. Descriptive effectiveness of the new produced drawings resides in the concurrence of the constructive matter and its formal expression. The interpretation of a piece of architecture offered by such kind of axonometric views is autonomous and based on tangible issues and, in this sense, can be seamlessly complemented with written arguments. However, the relevance of the ensuing reading lies in considering and combining theoretical reflections with the knowledge deriving from design practice. In other words, new produced drawings are intended to synthesize and to 'reconstruct' any material, constructional and functional aspects; in turn, the text makes possible to contextualize the piece of architecture as well as to reveal its expressive core. This way, any practical problems that the author of the original design faced in the concretization of any subjacent theoretical model might also be rediscovered."[65]

62. Emphasis on axonometric views as tool of analysis of Modern construction was afterwards also adopted in the work by A. Ruegg and B. Kruker (2002), *Constructive Konzept der Moderne*. Niggli Verlag, Zurich.

63. V. Riso, (2008) "Technology and place in the experience of modern architecture: three-parts essay through the analysis of significant case studies in twentieth century architecture", honorable mention awarded by the jury (composed by P. Blundell Jones, R. Dulio, A. L. Rossi, R. McCarter, L. Miotto) in the international competition Bruno Zevi Prize for a Critical Essay about Modern Architecture.

64. Based on the appreciation of a large bibliography, detailed study about the conditions of the building production at that time in Portugal can also be found in R. Gomes work (*op. cit*. pp. 129–159).

65. R. Gomes, Op. Cit., pp. 220-221.

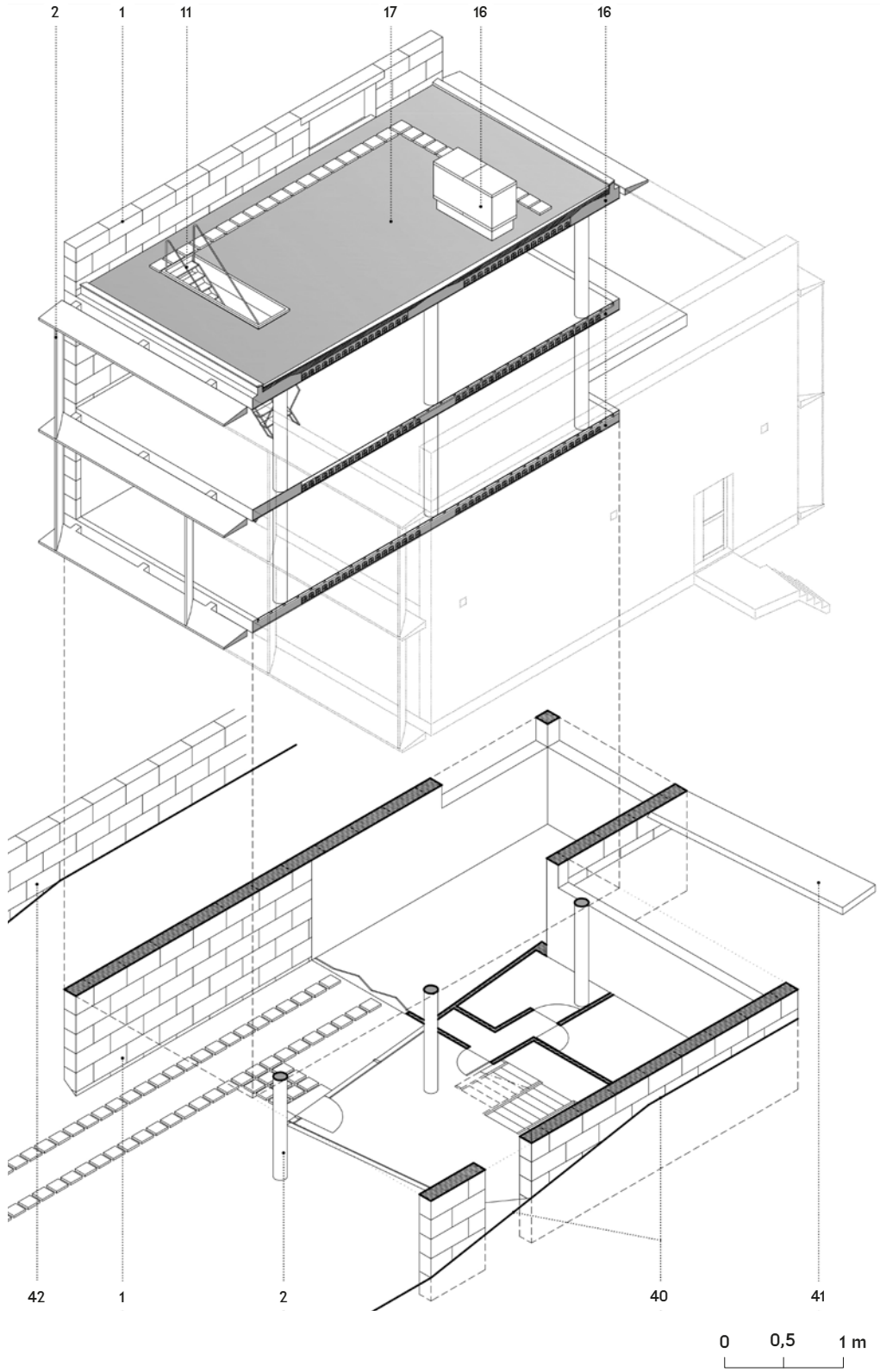
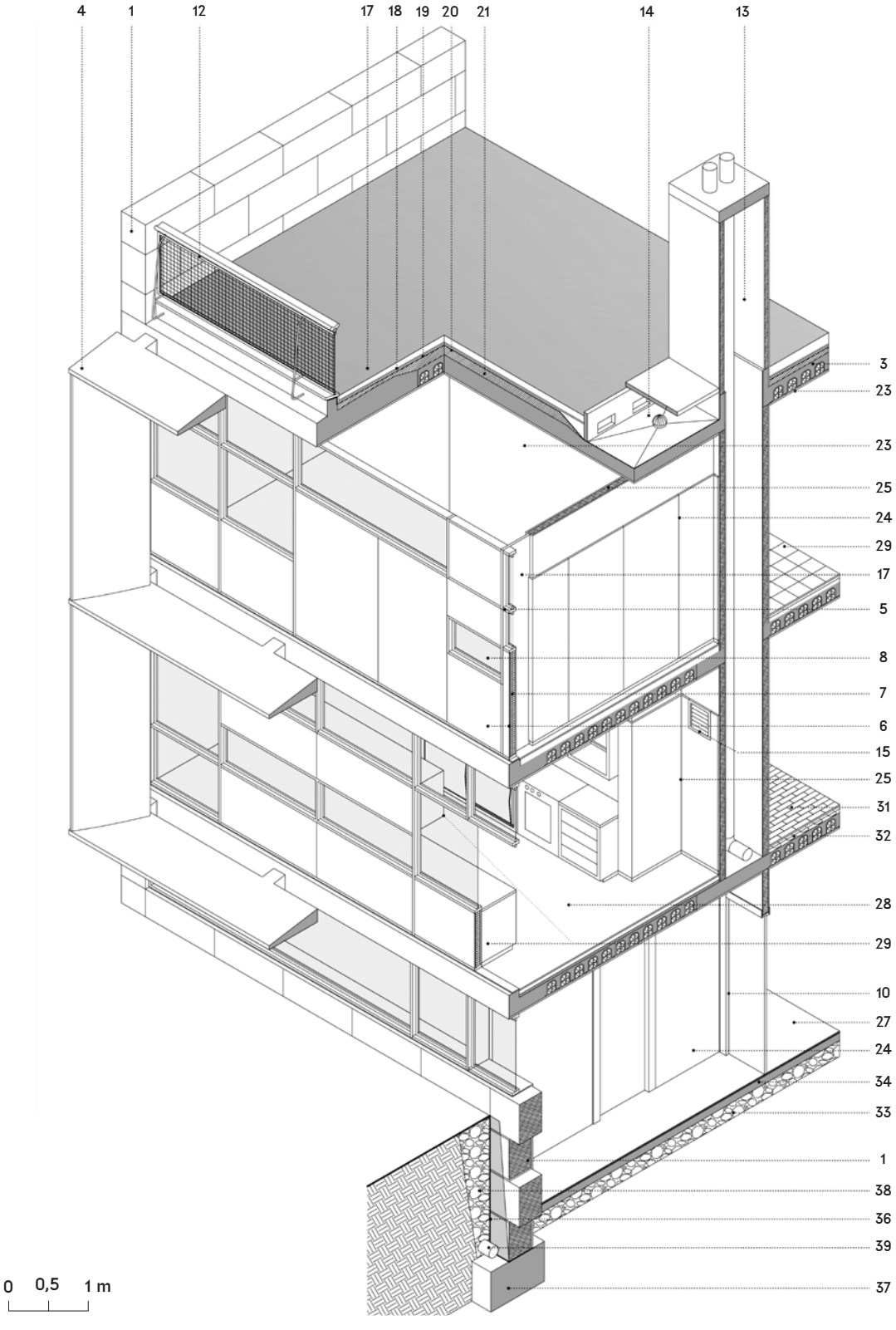
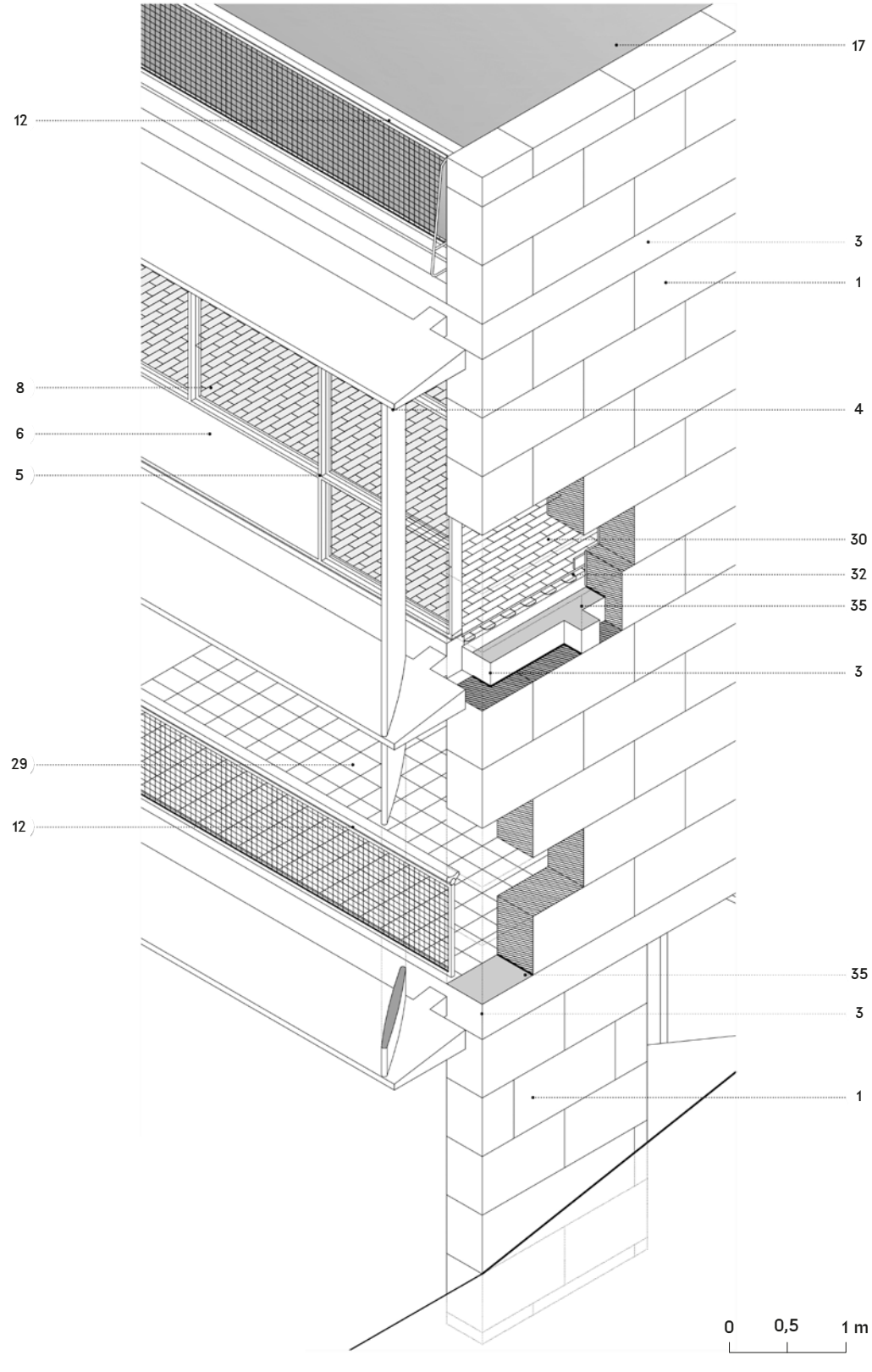


Fig. A.1, A.2 and A.3
Examples of axonometric re-drawing that analyze the original design and construction of the Amial House (Celestino de Castro architect, Porto, 1950), abstract from R. Gomes *Op. Cit.*, p. 258–260].


4
1
12
17
18
19
20
21
14
13
3
23
23
25
24
29
17
5
8
7
6
15
25
31
32
28
29
10
27
24
34
33
1
38
36
39
37
0
0,5
1 m


17
12
3
1
8
4
6
5
30
32
35
3
29
12
35
3
1
0
0,5
1 m

Legenda da Axonometria
A.1, A.2 e A.3 (Casa do Amial)

1. Parede portante em alvenaria aparelhada de aspeto regular em pedra de granite retangular, de 0.35cm de espessura, assente em argamassa de cimento formando juntas irregulares no seu alinhamento vertical e horizontal.

2. Pilares de secção circular em betão armado pintados à cor bordeaux.

3. Laje de betão armado aligeirado com armadura cruzada definida numa quadrícula e tijolos cerâmicos vazados do tipo Tijomel da série P/U.

4. Grelha quebra-luz em consola formada por uma estrutura laminar de betão armado de palas horizontais e verticais. Estrutura separada da face da laje em 15cm sendo apoiada / encastrada em seis pontos. Grelha aplicada nos alçados nascente e poente, pintada à cor bordeaux.

5. Caixilharia, nas fachadas nascente e poente, em madeira maciça de macacaúba para pintar em cor bordeaux, constituindo uma grade geral a qual é montada a seco. As faces de contato com paredes, tetos e pavimentos têm aplicação de pintura de óleo de linhaça fervido a quente.

6. Placas de madeira prensada extradura pintadas à cor creme.

7. Aplicação de aglomerado de cortiça na caixa-de-ar.

8. Vidro simples de 4mm de espessura assente com massa de vidraceiro e rematado com tafife de madeira maciça de macacaúba.

9. Armário de cozinha em contraplacado e tampo em mármore; os armários são desenvolvidos numa combinação de encaixe e relação com a caixilharia exterior.

10. Porta interior em contraplacado de carvalho, guarnições e aros em madeira maciça de carvalho.

11. Escadas de acesso à cobertura ajardinada, degraus em madeira macacaúba com 0,48x0.03x0,76m e estrutura metálica em tubular circular de 1" para pintar.

12. Guarda em rede metálica presa por cantoneira em "L" e tubular quadrado de aço. Corrimão em madeira maciça de macacaúba.

13. Corete vertical para canalizações, saneamento, ventilação, exaustão de fumos, tubo de descarga de águas pluviais da cobertura. Esta caixa é situada de forma a servir as principais instalações sanitárias e cozinha da habitação. A partir do 1º piso é visitável e inspecionável a toda a altura.

14. Caixa de recolha de águas pluviais com ralo central de escoamento.

15. Grelha de ventilação permanente.

16. Depósito da água em betão moldado.

17. Camada de terra com 0.20m de altura – cobertura ajardinada.

18. Tijolo cerâmico vazado.

19. Areia grossa betuminosa.

20. Impermeabilização asfáltica da Ral.

21. Formação de pendente em betão jorra (escória de carvão).

22. Alvenaria em tijolo cerâmico vazado.

23. Revestimento a Faserit.

24. Revestimento a reboco areado.

25. Lambrim em mármore de Estremoz 0.80x2.10m.

26. Lambrim em mosaico hidráulico 0.20x0.20m até aos 2.10m.

27. Pavimento em betonilha esquartelada.

28. Pavimento marmorite polida – Rodapé em marmorite.

29. Pavimento em mosaico hidráulico 0.20x0.20m.

30. Pavimento parquet de pinho em tacos retangulares 0.07x 0.21m com 0.02m de espessura – Rodapé em carvalho.

31. Pavimento parquet de freixo em tacos retangulares 0.07x 0.21m com 0.02m de espessura – Rodapé em carvalho.

32. Piso radiante.

33. Camada de cascalho de 0.15m de espessura assente sobre terreno compactado.

34. Camada de betão regularizado com argamassa de cimento para receber material final.

35. Feltro asfáltico aplicado na junta entre a laje de betão e a pedra.

36. Impermeabilização da parede de suporte em granito com manta de asfalto.

37. Sapata de betão corrida para assentar a parede de granito.

38. Cascalho.

39. Dreno aplicado no perímetro da edificação.

40. Terreno modelado para resolver a diferença de cota, superior à Rua do Amial, de cerca de 1.60m.

41. Rampa em betão armado de acesso ao pátio exterior da sala de jantar. Pavimento da rampa e pátio revestidos a mosaico hidráulico 0.20x0.20m.

42. Muro de vedação e limite do lote em alvenaria aparelhada de aspeto regular em fiadas iguais em pedra de granito retangular, de 0.35cm de espessura.

Hence, whenever we wish to reach a general understanding of a piece of architecture, drawing – compared to other knowledge procedures- can improve our close observation of the whole as well as of the details. If subsequently our aim is focused in the assessment of the conservation condition of the same piece of architecture, the rigor of the measurement, the identification of the situation and synthesis effort that is inherent to the act of drawing will allow us to detect the slightest changes, inconsistencies or absences. Working for the deepening of such concepts would contribute for an effective assessment of the health condition of a building, even in the sense of considering other information such as quantitative diagnostic data. That is to say that the comprehension of pathologies of any aged building could be considered as a further stage in the interpretative path started with the examination of the original design proposal; i.e. a cognitive path linking present to past/original condition of the building, if we were to synthetize such an inclusive methodology.

In his article "Old Buildings as Palimpsest" Rodolfo Machado resorted to the idea of those ancient papyrus or medieval parchment manuscripts, which were reused several times by erasing/washing out the ink of the original text and substituting it with a following one even though the engraved mark of the former penned texts remained partially readable. And accordingly, he explained that metaphorically speaking an existing "architectural work itself, can be seen as a text of a special kind that is characterized by the juxtaposition and co-presence of other texts".[66] The author is rightly using the idea of palimpsest to find a theoretical framework for the design operation of remodeling, which, in such a perspective, is an actual operation of rewriting upon an existing base. Thus, he stated that "If an original building is considered as a first discourse that conditions future formal discourses to be inscribed upon it, then remodeling can be considered as rewriting".[67]

But by using that very metaphor we can also assume that, depending on how it has been used and kept, the recollection of the past of a building could happen to be inherently photographed on its walls as layers from different time periods that have been deposited over there.[68]

Bearing this metaphor in mind, Carlos Maia, in his doctoral research work dealing with the conservation plan of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), adopted an archaeological-digging-like approach for searching, and therefore understanding, those very signs/marks left by the permanencies of use and alterations (implying additions and/or subtractions of elements) occurred since the building's completion, as well as a meticulous register of all the construction anomalies. As observable in the figures reported below **[Figs. A.4 to A.11]**,

66. R. Machado (1976), "Old Buildings as Palimpsest – Toward a Theory of Remodeling" in *Progressive Architecture (Restoration and Remodeling)*, n.11:76, pp 46–49.

67. *Ibidem*.

68. We may have been inspired by another essay which, even though on the far larger scale of territory, has adopted the palimpsest metaphor as a key of interpretation of the existing condition of an historically stratified entity. We are obviously referring to A. Corboz (1983), "Le territoire comme palimpseste" in *Revue Diogène* (n° 121 – jan/fev), pp. 14–35.

an essential part of this intuiting process dealt simultaneously with the effort to map the building in its whole by manipulating different formats of graphic representation as to interrelate different kinds of information.

Such operational mode was called “the decoding of the built matter” and was based on the preliminary tracing back of the chronology of all of the different phases of tenancy of the building that are identifiable along its lifetime. That was followed by the analysis of permanencies, additions and/or subtractions of elements in each room’s spatial layout. The correspondent graphic form of the resulting mapping of occupancies was arranged upon an overall plan, where the full extent of the floors was demarcated by the patchwork-montage of color photos of all surfaces in their current condition taken orthogonally, also followed by a set of parallel images in which black & white photos (wide angle of each room) represent its current situation, while drawings (vanishing point perspectives of each room) on the other side simulate the original layout, with indication of lost and/or altered parts.

Subsequently, the recognition of the palimpsest of all surfaces (masonry walls, ceilings and floors -while curtain walls due to their specific construction complexity have been dealt with in a separate chapter not pointed out in this text) kind of imprints separate layers of ‘wear marks + patinas’ ‘traces of old paint’. Anomalies in materials and construction were considered essential for the consequent integrated detection of their occurring pathologies. Thus, detailed observation, again according to rooms’ division, was portrayed on the base of a grid of orthographic projections (plans and elevations coordinated in scale and position) also fitted out with scale enlargements. Additionally, a single drawing register and drawing with superimposed-photo register were placed alongside. According to the author, it is “important to highlight that coordinated plans and elevations represent the entire (non-fragmented) dimensions of the rooms, so as to allow the observation of the behaviour of the materials in the whole set of the each given room. So as to better understand the ageing phenomena, such approach is aimed to achieve the organic reading of the stratified palimpsest that is still visible in the materiality of the construction.”[69]

69. Carlos Maia, *Op. Cit.*, p.387.

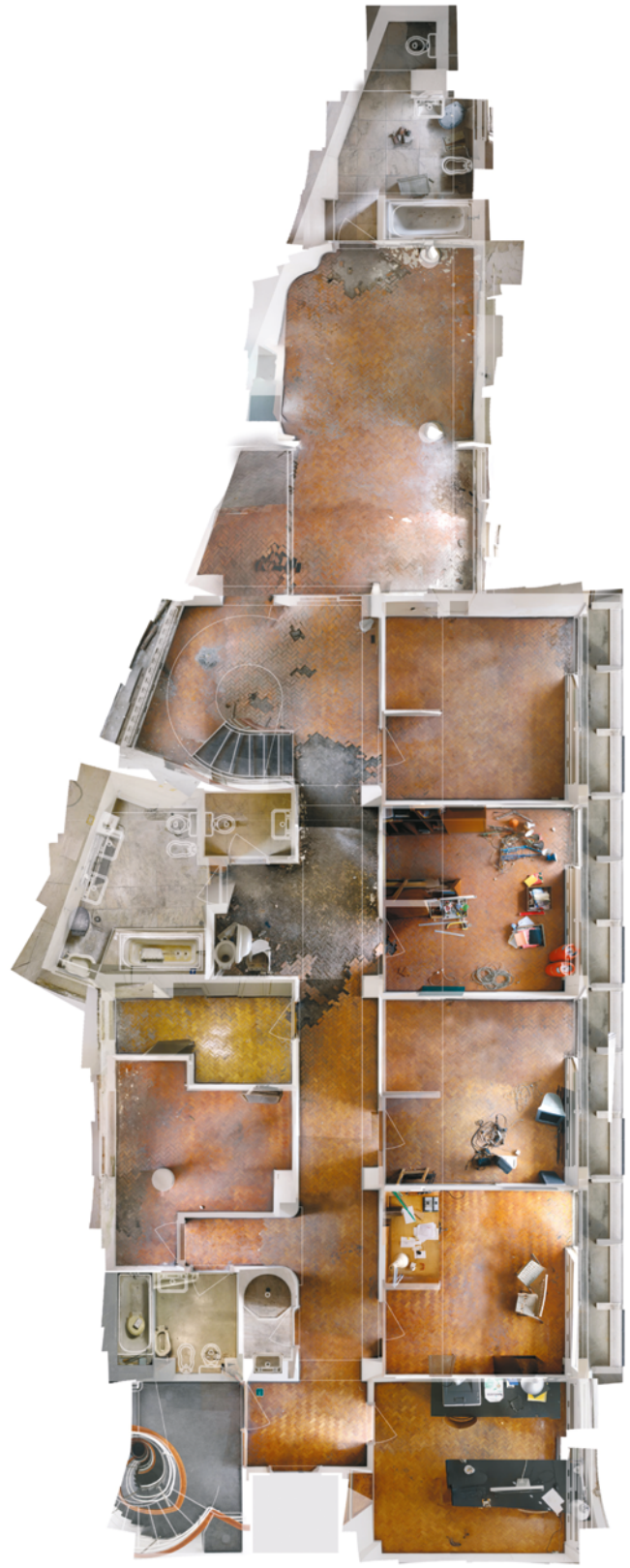
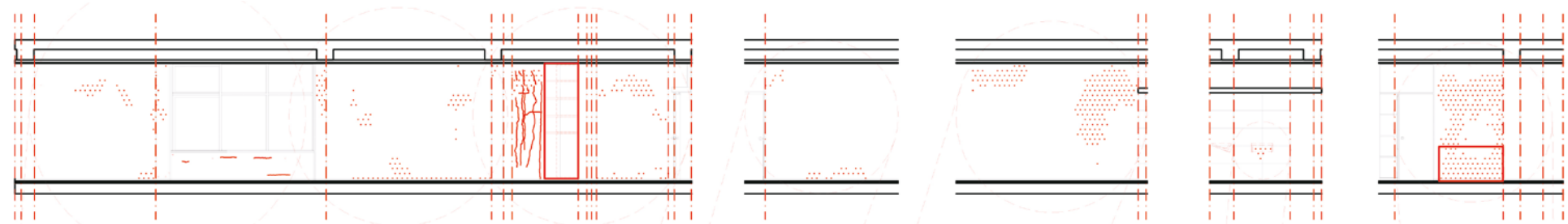
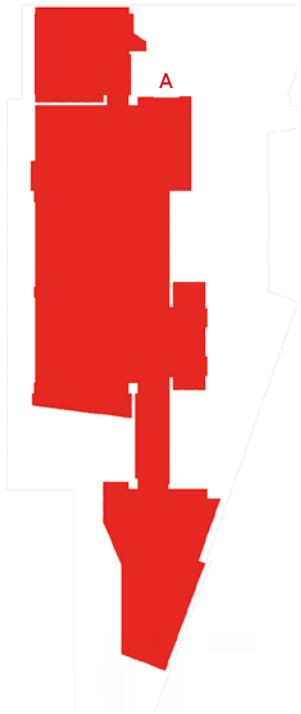
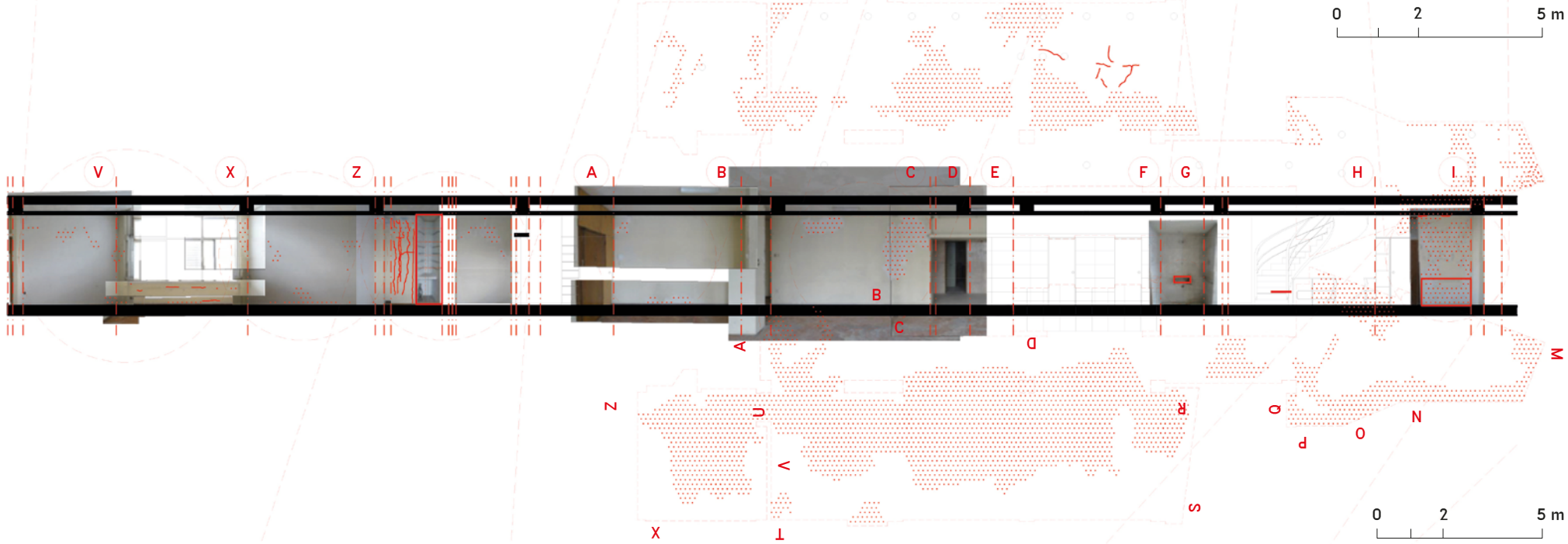


Fig. A.4
Examples of the ‘mapping of occupancies’ of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), abstract from C. Maia *Op. Cit.*, pp. 364–365 and 386].

Fig. A.5 and A.6
Examples of wear marks + patinas in the palimpsest-layer of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), abstract from C. Maia Op. Cit., pp. 388–389.







detachment/peeling

dampness

phyto efflorescence

biological patina

fungi

cracking

Fig. A.7
Examples of wear marks + patinas in the palimpsest-layer of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), abstract from C. Maia Op. Cit., pp. 388–389.

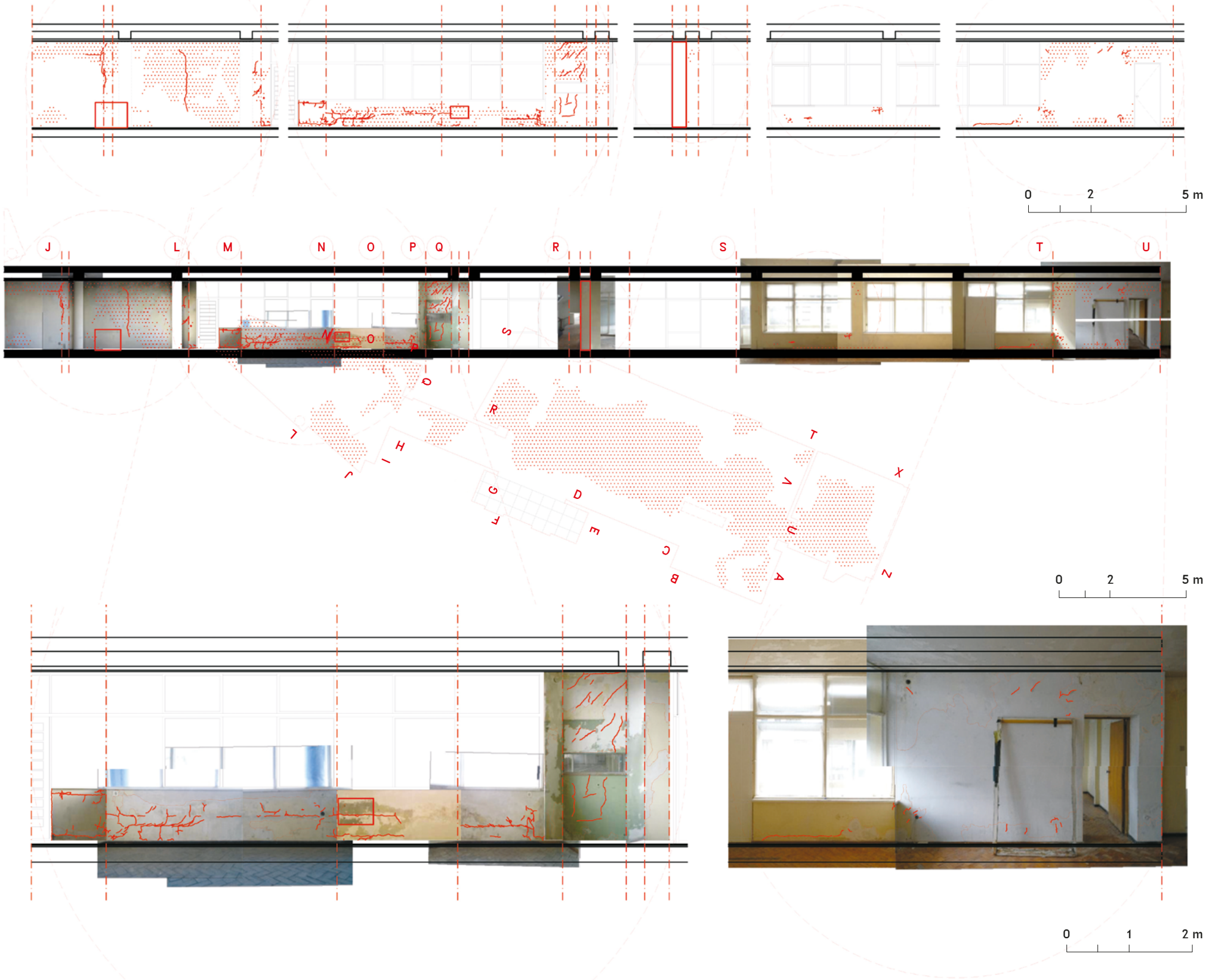
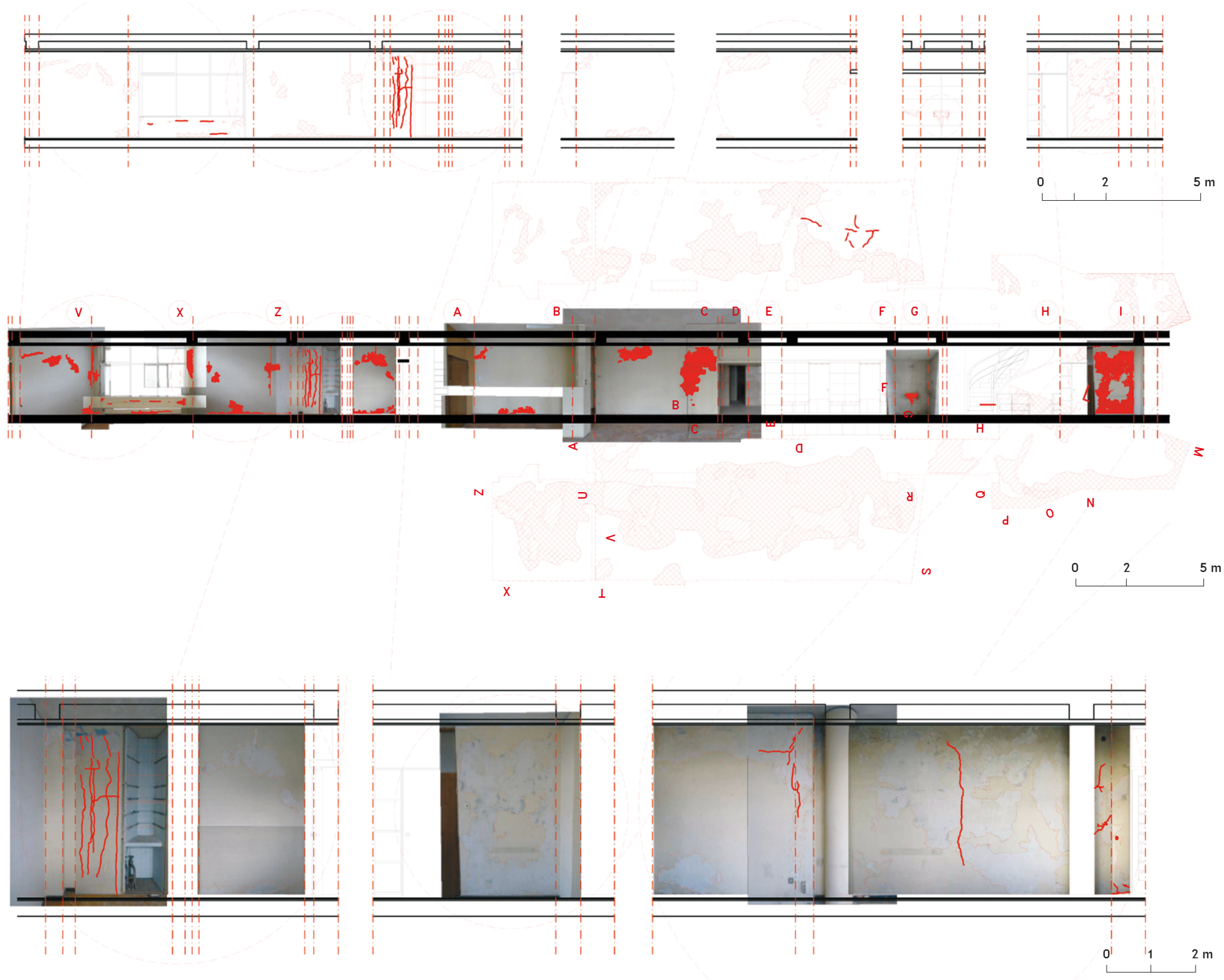


Fig. A.8
Examples of color marks in the palimpsest-layer of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), abstract from C. Maia Op. Cit., pp. 404–405.

Fig. A.9
Examples of color marks in the palimpsest-layer of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), abstract from C. Maia Op. Cit., pp. 404–405.

RAL 9011
RAL 7032
RAL 7034
RAL 7003
RAL 6021
RAL 6019
RAL 6034
RAL 5023
RAL 5009
RAL 8004
RAL 3016
RAL 3012
RAL 9010
RAL 9003

Fig. A.10
Examples of construction anomalies in the palimpsest-layer of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), abstract from C. Maia Op. Cit., pp. 462–463.



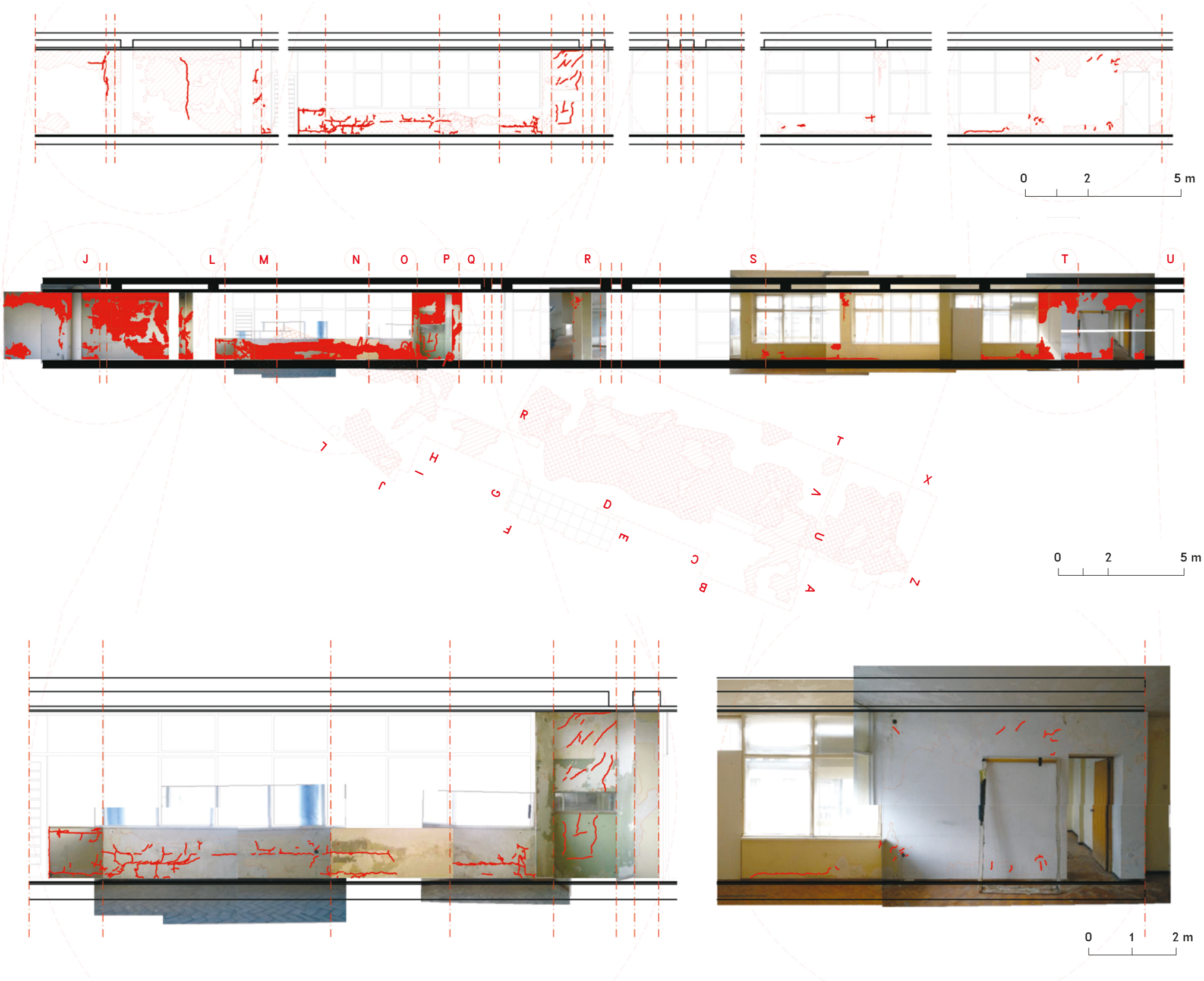


Fig. A.11
Examples of construction anomalies in the palimpsest-layer of the Penthouse of the Soares & Irmão building (architects Arménio Losa and Cassiano Barbosa, Porto, 1950–54), abstract from C. Maia Op. Cit., pp. 462–463.

Closing Remarks

So, in order to mention a possible integrated representation of building materials ageing and deterioration mapping, we could say that, simultaneously with the comprehensive scale, elaborations on different scales should be brought into play (i.e. drawings at different scales of representation within the same sheet of paper); in fact, the gradual definition of certain elements is to be brought about through the application of painstaking work that, in order to be in full focus, requires being executed on a smaller scale. This allows the focus of attention to come and go from a comprehensive to a detailed scale. The general outcome should be translated into a connection between representations of the single alterations, construction structures and spaces' organization too. Furthermore, we should also be able to observe that the underlying geometric aesthetics of Modern architectural composition facilitates this way of reading the drawings. It strives for a synthetic comprehension by shifting the focus of attention within a set of different orthographic projection views which, in the end, and from a conceptual perspective, works as a disassembled axonometric view.

To sum it up, any building's pathologies can be outlined through a continuous process of deconstruction and understanding. Of course, this is a practice usually taken for granted in the field of restoration of ancient buildings and monuments, even if it has only recently been applied for the first time to more contemporary heritage such as Modern Movement structures. We believe that these previous scientific achievements constitute a good amount of 'ready-to-use' tools and techniques. Buildings present clues and signs of the way they were used (or misused), as well as of any construction problems, regardless of their age. Observing the materiality of each clue and sign through drawing (and/or other graphic means of register complementary to drawing) gives way to the real analysis of the layer of imprints left by the passage of time. The advantage of our sort of case studies is likely to be the availability of that unique point of comparison that is the original design documentation, and, since we can still compare our drawing recognitions to the original drawings, the chance of presenting better hypotheses for the causes of pathologies. Accordingly, we could assess the causes for the alterations which we include among the categories of 'lack of maintenance', 'wrong design', 'wrong execution', 'wrong repair' or/and 'material failure' etc.

These are just a few reflections about working methods that we assumed in terms of specific research works. But everything indicates this is a promising research path, and that the search for more reference experiences – likely to be available – about graphics issues concerning survey practices for the assessment

of alterations specifically in Modern buildings and their constituting materials, could support the widespread of an attentive conservation practice.

Finally, going back to Rodolfo Machado's metaphor we can now also embrace the main intention behind his idea that "Remodeling is a process of providing a balance between the past and the future. In the process of remodeling the past takes on a greater significance because it, itself, is the material to be altered and reshaped. The past provides the already written, the marked 'canvas' on which each successive remodeling will find its own place. Thus the past becomes a 'package of sense', of built up meaning to be accepted (maintained), transformed or suppressed (refused)."[70]

In fact, we acknowledged such fitting with Machado's metaphor[71] dating back to 1976 only during the bibliographic groundwork to complement the present paper and we owe this finding to a newer essay by Sally Stone.[72] Here the author also recalls what Louis Kahn once said, suggesting we should ask the building in need of remodeling for advice. We should do it not only to point out that the unique answer lies within the profundity of its features and history, but also to demonstrate that "the inherent qualities of the place and its surroundings, combined with the anticipation of the future use, can produce a multi-layered complexity that is impossible to replicate in a new building".[73]

By fully agreeing that the question to be answered to is 'what does the building want to be?', we propose that this kind of study (drawing-based) could be helpful, as well as pertinent, since drawing is where it all starts.

70. R. Machado (1976), "Old Buildings as Palimpsest – Toward a Theory of Remodeling" in *Progressive Architecture (Restoration and Remodeling)*, n.11:76, pp 46–49.

71. As mentioned in footnote 12, our research was rather inspired by André Corboz's text, which was also published in Italian + English, and therefore possibly awarded a larger recognition, in *CASABELLA* (which was then under the direction of Vittorio Gregotti) n. 516/1985, pp. 22–27.

72. S. Stone (2005), "Re-readings: the design principles of remodelling existing buildings" in *WIT Transactions on The Built Environment*, Vol. 83, pp 125–134.

73. *Ibidem*.

An Afterword (by Carles Muro)

1. Few architects have produced such an extraordinary number of truly significant works during the course of their professional careers as Álvaro Siza: the swimming pools in Leça de Palmeira, the Malagueira district in Évora, the "Bonjour Tristesse" building in Berlin, the Borges & Irmão Bank in Vila do Conde, the Faculty of Architecture of the University of Porto, the reconstruction of the Chiado in Lisbon, the church in Marco de Canaveses or the Iberê Camargo Foundation in Porto Alegre, to name but a few. Any one of these works would be enough to guarantee him a place in the history of architecture.

However, if Siza had never built the Lordelo Cooperative, the overall assessment of his work and his contribution to the architectural culture of the second half of the 20th century and the early years of the present century would probably be exactly the same.

Precisely for this very reason, I find this meticulous work carried out by a group of students from the Universidade do Minho, led by Professor Vincenzo Riso, very timely and interesting. It seems to me that focusing on a lesser-known – and apparently less significant – work among those that make up Álvaro Siza's already long professional career is, from a pedagogical point of view, a particularly strategic choice. And it seems so to me, for at least two reasons.

On the one hand because, as it has not played a central role for criticism and has not hitherto been the subject of detailed studies and monographs, students have been able to approach this work free of the prejudices that usually accompany any interpretation, and to confront the physical and spatial conditions of the Cooperative building directly, without intermediaries.

On the other hand, because, as microhistory has taught us, the study of events or characters from the past that do not form part of the "grand narratives", and which have hitherto gone virtually unnoticed, allows us to discover unexpected aspects and enrich our understanding of certain moments, places and historical figures. In this context, the in-depth study of lesser-known works by an architect can shed new light on them which, in turn, can help us to better understand his/her entire oeuvre. Undoubtedly, until now, little attention has been paid to the Lordelo Cooperative in Álvaro Siza's oeuvre as a whole.*

2. To these two reasons we should add a third, no less important, which tells us about Siza's way of working, about the relationship he maintains with his work. I would dare say that for Siza all projects have the same importance, regardless of the scale, the programme, the type of client, the geographical location or its position in the city.

* The Lordelo Cooperative is featured prominently in the first major publication of Álvaro Siza's work outside Portugal: n. 68 of the magazine "Hogar y Arquitectura" (Madrid, 1967). The publication of a significant and extensive selection of his work in the magazine directed by Carlos Flores was, as Siza himself has stated on several occasions, a great stimulus and an important aid to the international projection of his career. In this issue, five pages are devoted to the Lordelo Cooperative compared to the six pages devoted, for example, to the Boa Nova Tea House or the only four pages devoted to the Leça swimming pools. We do not know how much of this distribution of pages is due to Siza himself or to Carlos Flores, but it is clear that, at this time, the Lordelo Cooperative was among his most significant works.

Subsequently, the Lordelo Cooperative practically disappeared from the publications dedicated to Siza's work, with the exception of the monographic issue that the Japanese magazine "A+U" dedicated to his work in 1989.

And, unless there is an error or omission, it does not reappear until fifty years after the first publication mentioned above when, on the occasion of the donation of part of Álvaro Siza's archive to the Serralves Foundation, an exhibition is organised at the Serralves Museum of Contemporary Art. Drawings, photographs and correspondence relating to the project are published in the exhibition

Álvaro Siza devotes the same attention and care to a modest single-family house as to a large social housing complex, to a warehouse or a factory as to a contemporary art museum, to a small chapel in the south of Portugal as to a skyscraper in the heart of Manhattan. Regardless of the final result and the potential critical assessment, Siza's gaze and creative intelligence approach each and every project he tackles with the same intensity. And he has done so tirelessly, from the beginning of his professional activity in the fifties to the present day.

It is precisely in this sense that the Lordelo Cooperative can be particularly valuable as it reveals the enormous amount of work that Siza has put into each and every one of his works, as well as the commitment with which he has carried them out and the tenacity with which he has defended them when necessary.

It is well known – at least since André Tavares published, in 2017, part of the correspondence between the architect and the new management of the Cooperative – the vehemence and conviction with which Álvaro Siza advocated the initial design decisions and proposed alternatives to respond to the simplistic proposals of the management to address some of the construction problems that arose a few years after the completion of the works.

A great deal of attention has recently and rightly been paid to the large hardwood plank joinery, which follows the geometry of the ground floor and defines the relationship with the courtyard. This is one of the most characteristic elements of the project and was undoubtedly at the centre of the disputes between the architect and the client. As in the swimming pool at Quinta de Conceição or in the Rocha Ribeiro house, the joinery does not simply occupy the openings in the walls, but is superimposed on them, reaching down to the ground, and creating a new form of conversation between inside and outside. Dozens of sketches and beautiful scale drawings bear witness to Siza's commitment to defining these elements.

But no less effort is devoted, for example, to the magnificent three-storey high entrance atrium – now also, unfortunately, considerably altered. The Siza archive contains dozens of sketches in which he studies different alternatives for the atrium, with vertical walls that accompany the entrance and are transformed into a series of ribbons, through the play of skilful tangents, on the upper floors. We could also talk about the geometry of the sophisticated staircase that connects the different floors, the numerous pieces of furniture designed for the building, or so many other themes present in this work. All of them tirelessly explored by Siza.

catalogue (see: Tavares, André, *Matéria-Prima: Um olhar sobre o arquivo de Álvaro Siza / Raw Material: A View of Álvaro Siza's Architecture*, Porto, Museu de Arte Contemporânea de Serralves, 2017). Shortly afterwards, in 2019, it occupies a central space in what was to be the first of a series of exhibitions and publications designed to bring Siza's work into dialogue with the work of a new generation of architects. Tom Emerson, the first architect invited to take part in this dialogue, discovered the Lordelo Cooperative and developed a large part of his reflections on openings based on this work (see: Muro, Carles, *Conversas com o Arquivo Álvaro Siza. Aberturas: Tom Emerson, Álvaro Siza / Conversations with the Álvaro Siza Archive. Openings: Tom Emerson, Álvaro Siza*, Porto, Fundação de Serralves, 2019).

3. The Lordelo Cooperative is not a minor work because there are no minor works in Álvaro Siza's gaze. But it is probably not, as Vincenzo Riso states in the subtitle of this publication, a masterpiece either. However, the Lordelo Cooperative is, without any doubt, the work of a master from whom we will always be able to continue learning.

Carles Muro
July 2021

References & Acknowledgments

References

About the early work of Álvaro Siza and its interpretation (short selection)

Kenneth FRAMPTON, Á*LVARO SIZA: tutte le opere*, prefazione di Francesco Dal Co, scritti di Álvaro Siza, Electa, Milan, 1999.

Vittorio GREGOTTI, "Architetture recenti di Alvaro Siza" in *Controspazio*, vol. 4 n. 9, September 1972, pp. 22–39.

Carles MURO (Ed.), *Conversation with the Álvaro Siza Archive - vol. 1*, Fundação de Serralves The Serralves Foundation, Porto, 2019.

Nuno PORTAS, "A Responsabilidade de uma Novíssima Geração no Movimento Moderno em Portugal", in *Arquitectura (Lisbon)* n. 66, Dec. 1959, pp. 13–14.

Vincenzo RISO, "Building methods in the architecture of Alvaro Siza", in *ARQ (Architectural Research Quarterly of Cambridge University)*, vol. 4, n. 3, 2000, pp. 265–280.

Jacinto RODRIGUES, Álvaro *Siza: obra e método*, Civilização Editora, Porto, 1992.

André TAVARES, *Matéria-Prima: Um olhar sobre o arquivo de Álvaro Siza / Raw Material: A View of* Álvaro *Siza's Archive*, Fundação de Serralves / The Serralves Foundation, Porto, 2017.

Álvaro SIZA, "Cooperativa de Lordelo, Oporto 1960–63", in *Hogar y Arquitectura (Madrid)*, n. 68, Jan.–Fev. 1967, pp. 59–63.

Peter TESTA, Álvaro *Siza*, Birkhäuser, Basel-Boston-Berlin, 1996.

Luiz TRIGUEIROS (ed.), Álvaro *Siza 1954–1976*, Editorial Blau, Lisbon, 1997.

About the Tectonic of Modern Materials

Iveta ČERNÁ & Ivo HAMMER (eds.), *Materiality*, Muzeum města Brna Hornemann Institut, Brno, 2008.

Edward R. FORD, *The Details of Modern Architecture. Volume 2: 1928 to 1988*, MIT Press, Cambridge (Massachusetts) and London.

Kenneth FRAMPTON, *Studies in Tectonic Culture. The poetics of Construction in Nineteenth and Twentieth Century Architecture,* Cambridge Mass. and London, 1995.

Jaques GUBLER, "Le bellezze del cemento armato" in *RASSEGNA* n. 49, March 1992, Electa, Milan.

Réjean LEGAULT, "Il materiale e la Modernità" in *RASSEGNA* n. 49, March 1992, Electa, Milan.

Alfred ROTH, *La Nouvelle Architecture / Das Neue Architektur / The New Architecture,* Erlenbach, Zurich, 1939.

About Drawing and Buildings' Survey

James S. ACKERMAN, *Origins, Imitation, Conventions - Representation in the visual Arts*, MIT Press, Cambridge Mass. and London, 2002.

Penelope HARALMBIDOU, *Marcel Duchamp and the Architecture of Desire*, Routledge, London and New York, 2016.

Stefano Francesco MUSSO, *Recupero e restauro degli edifici storici: guida pratica al rilievo e alla diagnostica*, EPC Editore, Rome, 2004.

Vincenzo RISO, "Re-drawing operations: methodology questions and results", in Tostões, Ana (ed.), *Modern Architecture in Africa: Angola and Mozambique*, ICIST/Tecnico, Lisbon 2014, pp.18–23.

Massimo SCOLARI, *Oblique Drawing: A History of Anti-Perspective*, MIT Press, Cambridge Mass. and London, 2012.

About Modern Heritage Conservation

Ugo CARUGHI & Massimo VILLONE, *Time Frames: Conservation Policies for Twentieth Century Architectural Heritage*, Routledge, New York, 2017.

Franz GRAF, *Histoire Matérielle du B*âti *et Projet de Sauveguarde. Devenir de l'Architecture Moderne et Contemporaine*, PPUR, Lausanne, 2014.

Hubert-Jan HENKET, *Waar niew en oud raken. Een pleidooi voor houdbare moderniteit in architectuur*, Lecturis, Eindhoven, 2013.

Wessel de JONGE & Marieke KUIPERS, *Designing from Heritage - Strategies for Conservation and Conversion,* Rondeltappe-Bernoster-Kemmers Foundation, Delft, 2017.

Susan MACDONALD, *Preserving Post-War Heritage: The Care and Conservation of Mid-Twentieth Century Architecture*, Shaftesbury, Donhead, 2001.

Susan MACDONALD and Ana Paula ARATO GONÇALVES, Conservation Principles for Concrete of Cultural Significance, Getty Conservation Institute, Los Angeles, 2020.

Rodolfo MACHADO, "Old Buildings as Palimpsest – Toward a Theory of Remodeling" in *Progressive Architecture (Restoration and Remodeling)*, n.11, November 1976, pp 46–49.

Theo PRUDON, *Preservation of Modern Architecture*, Wiley, Hoboken (N.J.), 2008.

Vincenzo RISO (ed.), *Modern building reuse: documentation, maintenance, recovery and renewal*, EAUM, Guimarães, 2014.

Vincenzo RISO (with contributions of A. Siza, C. Machado, I. Valente, J.L. Gil Pita and J.B. Távora and preface by Huber-Jan Hencket), *Reclaiming the use Fernando Távora's Municipal Market of Santa Maria da Feira. A Design Studio exercise about Modern Heritage developed within a Course Unit of the 5th year of the Integrated Master Degree at the School of Architecture of University of Minho during academic year 2015–2016*, Universidade do Minho - Lab2PT/EAUM, Guimarães, 2018.

Fred SCOTT, *On Altering Architecture,* Routledge, London, 2007.

Sally STONE, "Re-readings: the design principles of remodelling existing buildings" in *WIT Transactions on The Built Environment*, Vol. 83, 2005, pp 125–134.

Sally STONE, *UnDoing Buildings: Adaptive Reuse and Cultural Memory*, Routledge, London, 2019.

Acknowledgments

José Aguiar, José Manuel Alves Martins Pinto, Helena Antunes, Ana Francisca de Azevedo, Massimo Bianchini, Jorge Branco, António Costa, Luís Braga da Cruz, Benedetto Di Cristina, Eduardo Fernandes, Miguel Fernandes, Bruno Figueiredo, José Gigante, Rogério Gomes, Eduardo Graça, Rute Eires, Eduardo Júlio, Dinis Leitão, Maria João Macedo, Carlos Maia, Américo Gomes Miranda, Elisiário Miranda, Anabela Monteiro, Carles Muro, Jose Luis Gil Pita, Ivo Oliveira, Sónia Oliveira, Daniel Duarte Pereira, Chiara Porcu, Avelino Silva Rocha Ribeiro, Álvaro Siza, Peter Testa, Jónatas Valença.

CASES – Cooperativa António Sérgio para a Economia Social António Sérgio - Lisboa
(*António Sérgio Cooperative for Social Economy - Lisbon*)

Cooperativa de Lordelo do Ouro
(*The Lordelo do Ouro Cooperative*) – Porto

Fundação de Serralves Museu de Arte Contemporânea
(*Serralves Museum of Contemporary Art – Serralves Foundation*) – Porto

Adrià Salom Gómez; Agostinho Miguel de Freitas e Sousa, Ana Beatriz Meneses de Oliveira, Andreia Filipa Oliveira Soares, Cassilda Daniela Almeida Baptista, Clara da Silva Vieira, Eduarda Maria Barbosa de Araújo Rocha, Elsa Cristiana Alves Gonçalves, Fábio Teixeira Gonçalves, Franc Linxa, Hugo de Mendonça Ribeiro da Costa e Silva, João Paulo Oliveira de Almeida Brandão, Leandro David Arieira Alves, Paulo Rafael Dias Oliveira, Tatiana Vilaça Campos, Vânia Isabel Ferreira da Silva.

Álvaro Nuno Piairo de Oliveira da Silva Mendes, Ana Rita Teixeira Lopes, Carla Filipa Dias Lopes, Diogo Manuel Novais Pereira, Diogo Oliveira Araújo, Inês Alexandra Cardoso Tavares, Inês Eira de Castro, Inês Sofia Machado Torres, Júlio Alexandre Bacelar Oliveira Ferreira, Lucía Laín Mateu, Nuno Alberto Oliveira Gonçalves, Patrícia Pimenta Carvalho Ferreira, Ricardo António Fernandes Ribeiro, Rodrigo Santos Camargo, Silvy Alves Dias, Simão Pedro de Carvalho Lima, Vânia Patrícia de Sousa Cardoso.

Ficha técnica

Álvaro Siza's Lordelo do Ouro Cooperative Building:
Preliminary Studies towards the Conservation
of a Masterpiece in Need of Recognition

Author: Vincenzo Riso
Contributions by: Álvaro Siza, Rogério Gomes and Carles Muro
Documental Support by: Fundaçäo de Serralves Museu de Arte Contemporânea and Álvaro Siza – Arquitecto, SA
Drawings editor: Miguel Fernandes
Drawing final arts: Daniel Duarte Pereira
Translation and English language revision: Helena Antunes
Design Gráfico: Macedo Cannatà

Published by: Lab2PT
Coleção Paisagens, Património & Território / Investigação
Landscapes, Heritage and Territory Collection / Research

Printing and Binding: Diário do Porto
Print Run: 300
Digital version ISBN: 978-989-8963-30-7
Depósito legal:

Lab2PT
www.lab2pt.net

Instituto de Ciências Sociais
Universidade do Minho
Campus de Gualtar
4710-057 Braga

Escola de Arquitetura
Universidade do Minho
Campus de Azurém
4800-058 Guimarães

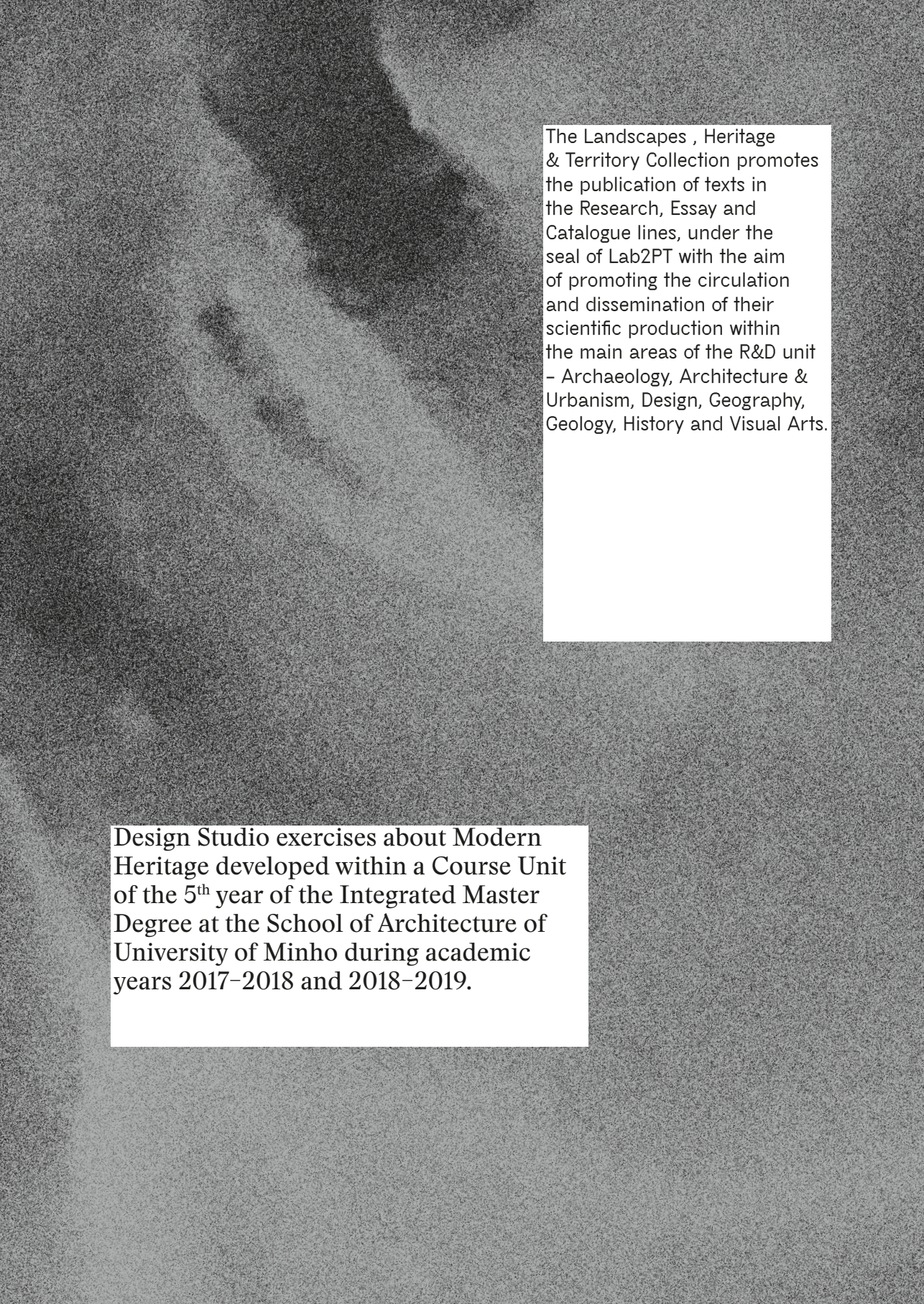
Laboratory of Landscapes, Heritage and Territory

Universidade do Minho
Instituto de Ciências Sociais

Universidade do Minho
Escola de Arquitetura

This work was financed by Portuguese funds through FCT - Fundação para a Ciência e a Tecnologia in the framework of the project Lab2PT - Landscapes, Heritage and Territory laboratory - UID/AUR/04509/2019.

FCT Fundação para a Ciência e a Tecnologia



The Landscapes , Heritage & Territory Collection promotes the publication of texts in the Research, Essay and Catalogue lines, under the seal of Lab2PT with the aim of promoting the circulation and dissemination of their scientific production within the main areas of the R&D unit – Archaeology, Architecture & Urbanism, Design, Geography, Geology, History and Visual Arts.

Design Studio exercises about Modern Heritage developed within a Course Unit of the 5th year of the Integrated Master Degree at the School of Architecture of University of Minho during academic years 2017–2018 and 2018–2019.